The IQ View Foundation User's Guide

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ADTRAN

901 Explorer Blvd.

P.O. Box 140000

Huntsville, AL, 35814-4000

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Contents

Chapter 1

INTRODUCTION 1-1

Chapter 2

DEFINITIONS AND CONCEPTS 2-1
CHAPTER STRUCTURE 2-1
UNDERSTANDING SNMP 2-1
Manager and Agents 2-1
MIB Concepts 2-3
ARCHITECTURE OF THE IQ VIEW FOUNDATION 2-3
Configuration and Name Management 2-4

Chapter 3

INSTALLING IQ VIEW 3-1
CHAPTER STRUCTURE 3-1
SYSTEM REQUIREMENTS 3-2
INSTALLING WINDOWS 3-2
INSTALLING THE PROTOCOL STACK 3-2
Microsoft TCP/IP 3-3
SNMP Over Protocol Stacks 3-3
Other Device Protocol Stacks 3-4
TESTING NETWORK CONNECTIVITY 3-4
INSTALLING IQ VIEW 3-5
REGISTERING YOUR SOFTWARE 3-8
I. Registering a Purchased Copy of IQ View 3-8
II. Evaluating IQ View 3-12
III. Purchasing IQ View Following the 30-Day Trial Period 3-12
VIEWING ON-LINE DOCUMENTATION 3-14
INSTALLING DEVICE MANAGEMENT SOFTWARE 3-15
STARTING THE IQ VIEW FOUNDATION 3-15
UNINSTALLING THE IQ VIEW FOUNDATION 3-17

Chapter 4

USING THE IQ VIEW FOUNDATION 4-1
CHAPTER STRUCTURE 4-1
FUNCTIONALITY OVERVIEW 4-2

File Menu 4-2
Edit Menu 4-5
View Menu 4-8
Network Menu 4-11
Security Menu 4-12
Tools Menu 4-12
Windows Menu 4-13
Help Menu 4-14
ADVANCED CUSTOMIZATION 4-15
The Options Dialog Box 4-15

Chapter 5

SECURITY 5-1
CHAPTER STRUCTURE 5-1
SETTING SECURITY 5-2
Enabling Security 5-2
Disabling Security 5-4
ACCESSING THE IQ VIEW FOUNDATION 5-5
The Login Process 5-5
Login as a New User 5-6
Logging Off without Closing 5-7
Standalone Mode 5-8
Closing the IQ View Foundation 5-8
MANAGING SECURITY 5-8
Activating the Administration Dialog Box 5-9
Layout of the Administration Dialog Box 5-9
Adding New Users 5-11
Deleting a User 5-12
Setting Access Privileges 5-12
Enabling the Retries Function 5-17
CHANGING YOUR PASSWORD 5-17

Chapter 6

BUILDING MAPS 6-1
CHAPTER STRUCTURE 6-1
CREATING/ ACCESSING YOUR NETWORK MAP 6-2
Initial Usage 6-2
Subsequent Usage 6-3
MAP STRUCTURE 6-4
Background Map 6-5
Icon Objects 6-5
Text/Embedded OLE Objects 6-5
MANIPULATING MAPS 6-6
Placing Objects on the Map 6-6
Manipulating Objects on the Map 6-10

Chapter 7

THE MOUSE RIGHT BUTTON MENU 7-1
CHAPTER STRUCTURE 7-1
ACCESSING THE ICON OBJECT MOUSE RIGHT BUTTON MENU 7-2
ICON OBJECT MOUSE RIGHT BUTTON MENU TYPES 7-3
Connectivity Icon Mouse Right Button Menus 7-3
Other Connectivity Icon Mouse Right Button Menus 7-3
ICON OBJECT CUSTOMIZATION 7-4
Attributes 7-4
Show/Hide 7-4
ICON OBJECT MANIPULATION 7-5
Node Browser 7-5
Start Node Polling 7-5
Help 7-6
SETTING DATABASE ATTRIBUTES 7-6
Setting General Information 7-6
Setting Network Information 7-7
LINK MOUSE RIGHT BUTTON MENU 7-8
Setting Contact Information 7-10
Setting Location Information 7-11
Obtaining Database Statistics 7-12

Chapter 8

DISCOVERING YOUR NETWORK 8-1
CHAPTER STRUCTURE 8-1
THE AUTODISCOVERY MONITOR 8-2
Activating the AutoDiscovery Monitor 8-2
Layout of the AutoDiscovery Dialog Box 8-3
Button Bar 8-4
CONFIGURING AUTODISCOVERY 8-6
Preparing for Initial Usage 8-6
Adding Network Segments 8-7
Defining the Method of AutoDiscovery 8-8
Setting SNMP Parameters 8-11
Starting AutoDiscovery 8-12
CUSTOMIZING THE AUTODISCOVERY SCHEDULER 8-13
MANAGING THE AUTODISCOVERY DATABASE 8-16
Updating the AutoDiscovery Database 8-16
Clearing the AutoDiscovery Database 8-17

Chapter 9

POLLING YOUR NETWORK 9-1
CHAPTER STRUCTURE 9-1
CONFIGURING POLLING GROUPS 9-2
Configuring the Default Polling Group 9-2
Configuring Additional Polling Groups 9-3

POLLING YOUR NETWORK NODES 9-4
Start Group Polling 9-5
Stop Group Polling 9-6
Stop All Polling 9-6
SINGLE NODE POLLING 9-7

Chapter 10

MANAGING EVENTS AND ALARMS 10-1
SNMP Traps 10-1
Internal Events 10-2
CHAPTER STRUCTURE 10-2
TRAP PROCESSING 10-2
Enabling Trap Processing 10-3
THE ALARM MONITOR 10-3
Activating the Alarm Monitor 10-3
The Command Bar 10-4
The Toolbar 10-6
The Alarm Monitor Data Table 10-6
CONFIGURING THE ALARM MONITOR 10-9
Groups 10-9
Trap Rules 10-11
DATABASE MAINTENANCE 10-19

Chapter 11

USING OLE OBJECTS 11-1
CHAPTER STRUCTURE 11-1
OBJECT LINKING AND EMBEDDING (OLE) 11-2
Containers 11-2
Drag and Drop 11-2
OLE Copy/Cut/Paste 11-2
Zooming 11-3
ADDING AN OLE OBJECT TO THE MAP 11-3
The Insert/Object Dialog Box 11-3
Creating an Embedded OLE Object 11-4
Creating a Linked Object 11-4
Using the Links Option 11-5
MODIFYING AN OLE/TEXT OBJECT 11-6
Editing an OLE Object 11-6
Displaying the Object As an Icon 11-6
Changing the Link Source 11-7
COPYING OBJECTS 11-8
Using Copy/Cut/Paste 11-8
Using the Paste Special Option 11-8

Chapter 12

THE MIB COMPILER....12-1
CHAPTER STRUCTURE....12-2
THE MIB COMPILER DIALOG BOX....12-2
Command Bar....12-3
Activity Messages Section....12-9
MIB Source Files Section....12-10
MIB Database Section....12-11
Button Bar....12-13
The New Database Dialog Box....12-13
COMPILING MIB FILES....12-14
Update/Overwrite an Existing Database....12-15
Creating a New Database File....12-17
Adding MIB Files to the MIB Source Files List Box....12-19
Removing MIB Files from the MIB Source Files List Box....12-20
MIB Database Structure....12-21
Reports....12-22
COMPILER MESSAGES....12-22
INTEGRATING UNSUPPORTED DEVICES....12-24
Redefining Unsupported Devices....12-24
Adding an SNMP Custom Node to your Map....12-26
Configuring your SNMP Custom Node....12-26
The Node Browser....12-27

Chapter 13

THE IQ VIEW CONFIGURATOR....13-1
CHAPTER STRUCTURE....13-1
THE IQ VIEW CONFIGURATOR DIALOG BOX....13-2
The Caption Bar....13-2
Button Bar....13-3
Folders....13-3
Configure New Groups....13-7
Load/Enable/Disable Groups....13-8
THE IQ VIEW SCHEDULER....13-9
The Scheduled Events Dialog Box....13-10

Chapter 14

THE UNIVERSAL REPOSITORY....14-1
CHAPTER STRUCTURE....14-1
THE UNIVERSAL REPOSITORY DIALOG BOX....14-2
The Retrieval Folder....14-3
The Aging Folder....14-5
BASELINING....14-7
Configure New Baselining Rules....14-7
Assign Baselining Rules....14-10

Chapter 15

TREND ANALYSIS 15-1
Document Conventions 15-1
CHAPTER STRUCTURE 15-2
TREND ANALYSIS SCHEDULER 15-3
TREND ANALYSIS 15-4
Creating and Modifying Reports 15-7
2D CHART CONTROL PROPERTIES 15-13
Control Folder - 2D Chart Control Properties 15-14
Axes Folder - 2D Chart Control Properties (select for X and Y axis) 15-15
Chart Groups Folder - 2D Chart Control Properties (select group) 15-15
Chart Styles Folder - 2D Chart Control Properties (select group and style) 15-16
Titles Folder - 2D Chart Control Properties (select header or footer) 15-16
Legend Folder - 2D Chart Control Properties 15-17
Chart Area Folder - 2D Chart Control Properties 15-18
Plot Area Folder - 2D Chart Control Properties 15-19
View 3D Folder - 2D Chart Control Properties 15-20
SUPPLEMENTAL FUNCTIONS 15-21
Adding Descriptive Text and Forms To Your Report 15-21
Add Reports 15-21
Expression Wizard 15-21
Form Bar 15-22
Group Definitions 15-23
Label Definitions 15-26
Remove Reports 15-29
Report Review 15-29
Text Bar 15-30
Using the Date and Time Caption Dialog Box 15-31
LABEL FORMATS 15-32

Chapter 16

OTHER CONSIDERATIONS 16-1
CHAPTER STRUCTURE 16-1
PERFORMANCE CONSIDERATIONS 16-1
COMPLIANCE STANDARDS 16-2
SNMP Standards 16-2
RELATED PUBLICATIONS 16-3
TCP/IP 16-3
SNMP 16-3
Network Management 16-4

Summary of Changes

Revision 0.1

The first version of this document is for the Beta test version of the **IQ View Foundation**.

Chapter 1
Introduction

The **IQ View Foundation** is a multi-vendor network management platform targeted to manage small and middle range TCP/IP - SNMP networks (up to 100 nodes).

The **IQ View Foundation** is a management framework suited to support and manage SNMP nodes. It can control multi-vendor network devices with the **IQ View Foundation's** custom applications. It provides a complete solution for network management and device management. The **IQ View Foundation** supports the following features:

AUTODISCOVERY discovers all SNMP and IP devices on your network(s) and stores all related information in a central database.

MAPPING SUPPORT takes the information stored in the database and creates a logical graphical map representing your network.

POLLING allows you to periodically monitor the connectivity status of the various devices on your network.

TRAP MANAGEMENT allows the **IQ View Foundation** to be a central repository of all traps received by the device. These traps are processed according to specific rules and are stored or archived in the management station database.

SECURITY enables a network manager to define network access rules such as who may access the **IQ View Foundation** and who may monitor or manage network nodes.

DEVICE INTEGRATION refers to the flexibility with which you may integrate non-supported devices with the **IQ View Foundation**. You can compile these unsupported device MIBs using the **MIB Compiler**, define new devices supported by the **IQ View Foundation**, *and* manage your device with a generic MIB Browser.

This **IQ View Foundation** architecture is based on the object model. The **IQ View Foundation** is *object oriented,* and thus defines its own set of network-manageable objects. It supports ODBC databases.

It can integrate OLE objects such as text, advanced graphics, video, or multimedia onto the maps/submaps.

Chapter 2
Definitions and Concepts

This chapter provides the essential concepts needed to understand how the **IQ View Foundation** functions.

Chapter Structure

This chapter is structured according to the following topics and subtopics:

- **Understanding SNMP**
  - **Managers and Agents**
  - **MIB Concepts**
- **Architecture of the IQ View Foundation**
  - **Configuration and Name Management**

Understanding SNMP

In order to understand SNMP effectively, concepts such as managers, agents, and MIBs must first be explored.

Manager and Agents

A TCP/IP network contains a set of nodes (stations and servers) and connectivity devices (repeaters, bridges, routers). To be manageable, all these nodes must have a network management framework in common.

This framework, supported by the **IQ View Foundation**, is the SNMP (Simple Network Management Protocol) standard.

A **management station** (**IQ View Foundation**) on an SNMP network can manage and control devices supporting SNMP **agents**; the applications running on the management stations can monitor and control the agents.

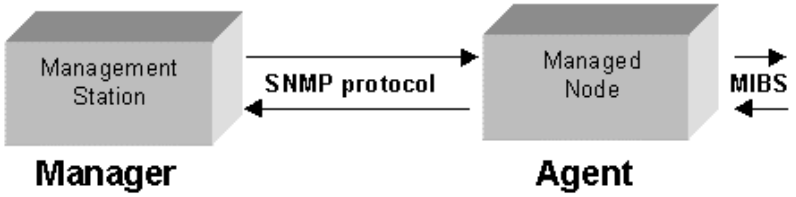


Figure 1: SNMP Network Management Architecture

The management agent implements functions required to process a set of specific standard requests sent to/from the manager.

GET: A Get request is sent from the manager to the agent to retrieve the value of objects from the agent. More specifically, the manager can query the device to return such values as device identification, processing capability, configuration (cards/interfaces connected), statistical counters about node interfaces or device performance status, and so on.

SET: A Set request is sent from the manager to the agent to set the value of objects at the agent. More specifically, the manager can remotely control the device. For instance, the manager can reboot the device or reset statistical counters to zero with a Set request.

TRAPS: Traps are unsolicited messages sent from the agent to the manager about a status change occurring in the node. Typical events include: device power on/off, port connected/disconnected, element failure, and performance threshold reached.

When the manager sends Get/Set requests to the agent, the request must give a community name (password) that allows the end-user to control the device. If the request community name matches the agent community name, the agent then processes the request, and a response is sent back to the manager.

MIB Concepts

More formally, the Management MIB Information (defined in RFC 1155 and 1157) describes those objects that can be managed by SNMP. Managed objects are organized in the MIB as a global tree. Leaf objects are uniquely named by their object identifier. Each object identifier represents the sequence to the tree from the root and identifies one object to be managed.

Using the **IQ View Foundation** and its applications, the end-user is generally unaware of the SNMP protocol and the MIB. All requests are built using a graphical interface that hides the SNMP protocol from the end-user.

However, when using a basic MIB Browser (such as the **Node Browser** on the **IQ View Foundation**) the end-user must understand these SNMP concepts: (**1**) This browser is MIB-II (RFC1213) compliant; (**2**) This standard defines a common MIB base for all SNMP device.

Architecture of the IQ View Foundation

The **IQ View Foundation's** architecture is based and built around the OSI Management functional area standards. It provides an integrated solution for network and device management.

The **IQ View Foundation** is the base repository of the network's topology and nodes. Support network services such as **AutoDiscovery**, **Polling** and **Alarm** management all provide network control. Specific node management applications running on the **IQ View Foundation** complete the solution for SNMP node control.

In order to support this framework, the **IQ View Foundation** must cover the following network management scope.

Configuration and Name Management

Based on the framework, two components are essential to configuration management: the **Mapping** and **AutoDiscovery** subsystems.

The Mapping Subsystem

The **IQ View Foundation** provides a graphical application (GUI) to manage network nodes. All such graphical representations of the network(s) are managed by the **Mapping** subsystem.

The **Mapping** subsystem shows the hierarchical representation of the TCP/IP network (networks, subnets, and nodes on the subnet). Each map contains a set of related symbols or submaps that represent a network. Icons on the map represent these nodes. With an intuitive interface, you are then able to control the device by *clicking* on objects and launching device management applications.

The AutoDiscovery Subsystem

The **AutoDiscovery** subsystem is the other configuration management component. **AutoDiscovery** collects (discovers) information on your network's topology and its nodes.

Nodes are discovered by a broadcasted SNMP and/or UDP request to all nodes within a network-defined address range. **AutoDiscovery** then determines (**1**) if the node is an IP node (by receiving a UDP response) and (**2**) if the node supports an SNMP agent (by receiving an SNMP response). If an SNMP node is in fact found, basic MIBs (the node name, its capability and port information) are downloaded and kept in a central database called the **AutoDiscovery Database**.

This database keeps track of all networks and discovered nodes. Later on, customized nodes can also be added manually if required.

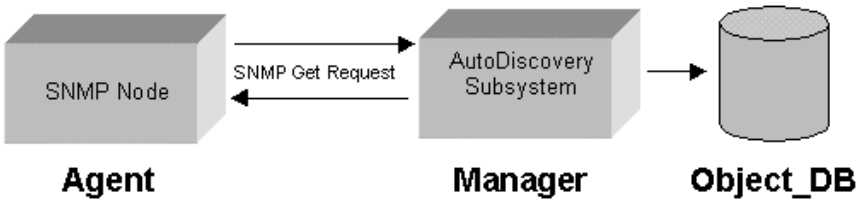


Figure 2: The AutoDiscovery Subsystem

The minimal configuration information required to discover nodes by the **AutoDiscovery** process is a network address range and community name. The de facto standard for a Get request community name is **PUBLIC**.

The AutoDiscovery Database

The **IQ View Foundation's** repository database is called the **AutoDiscovery Database**. It defines the complete structure of the network, subnets, node object definitions and related attributes.

The database structure is based on *relational tables* that contain all network object definitions and relationships.

The *tables* contained within the **AutoDiscovery Database** are as follows:

- The network object table
- The segment table
- The node table
- The interface table
- The attributes table
- The link table

Building Maps

Building AutoDiscovery Maps

The most common way to build maps is to run an **AutoDiscovery** cycle to locate the nodes and then store them in the **AutoDiscovery Database**. Afterwards the map is created from this.

Usually one map is required to represent your network. However, you can create multiple maps from the database.

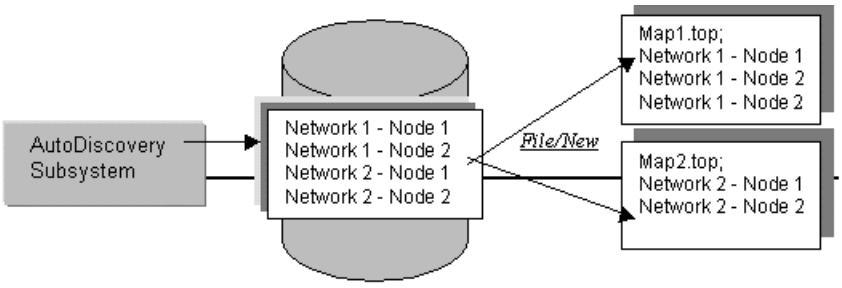


Figure 3: Building Multiple Maps

AutoDiscovery-generated map files are called topology files (.TOP). They are saved in specific files and represent two level-maps.

Map Files Versus the AutoDiscovery Database

A map file (.TOP) created from the **AutoDiscovery Database** graphically represents the database. Such a map shows all discovered networks and nodes. You can save this file and then delete all unnecessary networks or nodes from the map in order to create regional maps.

The relationship between the map node (icon) and the **AutoDiscovery Database** is the following: for each node on the map, pointers to the parent object record is defined. However, the **AutoDiscovery Database** itself is unaware of the maps.

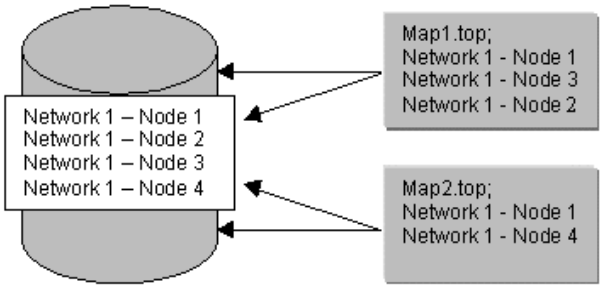

Network 1 – Node 1
Network 1 – Node 2
Network 1 – Node 3
Network 1 – Node 4
Map1.top;
Network 1 - Node 1
Network 1 - Node 3
Network 1 - Node 2
Map2.top;
Network 1 - Node 1
Network 1 - Node 4

Figure 4: AutoDiscovery Database - Map File Relationships

Opening the icon's attributes mapping function accesses the parent node database record. These attributes contain information about nodes kept in various **AutoDiscovery Database** tables. **AutoDiscovery** sets some information; additional information can be added later on through dialog boxes.

Modifying Existing Maps

- Building **AutoDiscovery** maps is a convenient method to obtain a quick and raw representation of your network(s).
- Building from scratch or enhancing existing **AutoDiscovery** maps gives a greater degree of freedom to:
    - Set the background map and grids
    - Define more links between objects
    - Add non-manageable network elements (such as a dumb printer)
    - Add text, advanced graphics, or linking/imbedding OLE objects

The mapping application provides all the graphic functionality required to enhance your maps.

AutoDiscovering Two-Level Maps

All **AutoDiscovery** maps are two-level maps where the root map contains all discovered networks and the second level includes the network nodes themselves.

User-Defined Three-Level Maps

You can define a three-level map (network, segment, and nodes) if you choose to build your maps manually.

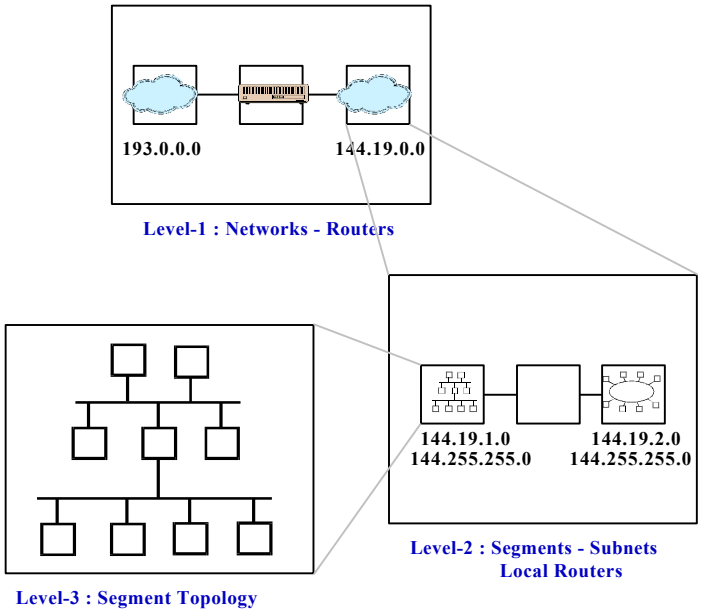


Figure 5: Three-level Map

In a single LAN network there is always at least one physical segment defined. A segment is a logical set of nodes connected together. Typically, a single network with one segment connects the node to a repeater (Ethernet) or (MAU) hardwire physical connectivity device. For a middle-range network, a stackable (cascade) repeater configuration is used.

With the **IQ View Foundation** you can set up a three-level map topology if you wish.

A three-level-range network is more specific to multiple LAN segments with different physical topologies. Typically, repeaters, bridges, routers, or gateway devices link the segments physically together. They are grouped logically into *subnets* by an addressing scheme, which is part of the same network.

In this kind of configuration, each segment has its own data link and physical structure. For example, one segment can be (at the data link) *Ethernet* with a *10base5* (physical) cabling, but the other segment can be Token Ring (IEEE 802.5) with a twisted pair shielded cabling. Specific **IQ View Foundation** icons represent these segment topologies.

The **IQ View Foundation** is not suited to directly represent the physical cabling because of a lack of information provided by SNMP-MIB II. The three-level map itself also cannot discover cabling information from MIB-II information in SNMP nodes.

The **IQ View Foundation** thus supports the *logical* representation (bus, ring, and so forth) of the network. You can then set your own hierarchy with the mapping application.

Fault Management

Fault management refers to a software capability that processes abnormal conditions requiring management attention (or actions).

The Alarm Subsystem

The **IQ View Foundation** implements this facility by receiving and processing unsolicited device *traps* sent by SNMP agents.

Upon receiving the trap, specific rules based on agent identification and generic–specific information from the trap are executed.

The **Alarm** manager stores or archives traps in the **Alarm Database**, by changing the color status of the node on the map, by sounding audible sounds, or even launching external applications.

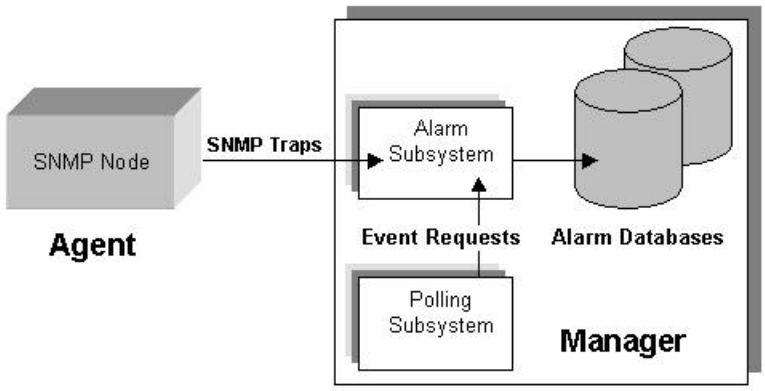


Figure 6: The Alarm Subsystem

Internal traps generated by the **IQ View Foundation** itself (such as a *node not responding to polling*) are called *events*. More formally,

an event is a trap request generated by an **IQ View Foundation** subsystem, sent to the station SNMP agent, and then received and processed by the **Alarm** manager.

Security Management

The Security Subsystem

The **Security** subsystem circumvents some SNMP standards lacking security. It allows an **IQ View Foundation** administrator to define who can manage the network. This manager can define the attributes (managing functions) allowed for each operator (who is permitted to manage maps, devices, traps). This subsystem also checks SNMP requests sent by applications and can disable the Set request if the operator is not allowed to perform such operations.

Security is also enhanced by specialized applications (like the **Trap Manager**) that support security at the device level.

Performance Management

The **IQ View Foundation** itself does not support any network performance facility. However, the **IQ View Foundation** supports specific applications related to network performance: **GUI** and the **Node Browser** where you can access performance data, graphic applications, and threshold applications.

It also supports a threshold application that monitors threshold values by polling them for specific SNMP agent MIBs.

All data collected by the **IQ View Foundation** may be used to graph network performance and trends through **Trend Analysis**.

The IQ View Foundation's Management Solutions

The following table lists the wide variety of network management solutions offered by the **IQ View Foundation**:

Configuration Management	IQ View
(Network) Mapping	X
(Device) GUI Applications	X
Graphic Port Configurations	X
AutoDiscovery	X
Fault Management	
Alarm/event Processing	X
Device Polling	X
Security Management	
Operator Control	X
Trap Manager	X
Port Security	X
Performance Management	
Real-Time Graphics	X
Threshold	X
Advanced Graphics	X
Trend Analysis and Report Generation	X

Chapter 3
Installing IQ View

This chapter includes installation and registration information.

Chapter Structure

This chapter is structured according to the following topics and subtopics:

- **System Requirements**
- **Installing Windows**
- **Installing the Protocol Stack**
  - **Microsoft TCP/IP**
  - **SNMP Over Protocol Stacks**
  - **Other Device Protocol Stacks**
- **Testing Network Connectivity**
- **Installing IQ View**
- **Registering Your Software**
  - **Registering a Purchased Copy of IQ View**
  - **Evaluating IQ View**
  - **Purchasing IQ View Following the 30-Day Trial Period**
- **Viewing On-Line Documentation**
- **Installing Device Management Software**
- **Starting the IQ View Foundation**
- **Uninstalling the IQ View Foundation**

System Requirements

Hardware requirements are as follows:

- Pentium processor (150 MHZ) or higher
- *Windows/95* - 32 MB of RAM
- *Windows/NT 4.0* - 64 MB of RAM
- 40 MB of hard disk space for the **IQ View** software itself and 1 GB for all database files
- NIC Interface compatible with the TCP/IP protocol stack
- Resolution set to 800 by 600 (or higher) with at least 256 colors or higher
- CD-ROM to install **IQ View**.

Note: Full database files require 2 GB of hard disk space.

Installing Windows

Microsoft Windows™ must be installed and working before you can install **IQ View**. **IQ View** currently supports both Windows 95 or Windows NT 4.0 (or later).

All OLE and ODBC drivers required by **IQ View** will be merged with the operating system during installation of **IQ View**.

Installing the Protocol Stack

In order to ensure that **IQ View** is able to communicate with SNMP-compliant IP devices on your network, you must check if a TCP/IP - Winsock 1.1-compliant protocol stack is installed on your system.

Microsoft TCP/IP

Typically, the Microsoft TCP/IP™ standard protocol stack for Windows 95 or Windows NT will be used for TCP/IP support.

- The stack can be installed during Windows installation or TCP/IP can be added later on (the Windows installation CD-ROM will then be required). To check if TCP/IP is installed, open the *Control Panel* folder and then the *Network* folder and verify if the *service* TCP/IP (at least NETBIOS should be defined) is defined. If not, add the service.

  To ensure **IQ View** is working properly, define the following information:

  - Enter your static IP Address and the network subnet mask.
  - WINS must not have been enabled if you want the **IQ View Foundation** to process incoming alarms.
  - In a multi-segment environment (with routers) you must define the gateways and the domain name servers. Consult your network administrator to obtain this information.

SNMP Over Protocol Stacks

When installing **IQ View** itself following the instructions later in this chapter, all necessary WinSNMP layer drivers will be installed on your PC to complete the protocol stack installation.

This version of **IQ View** supports:

- SNMP over Ethernet (RFC 1089)

This version does *not* support:

- SNMP over OSI (RFC 1418)
- SNMP over IPX (RFC 1420 with FTP PC/TCP)
- SNMP over AppleTalk (RFC 1419)

Other Device Protocol Stacks

Other device Winsock 1.1-compliant protocol stacks such as *FTP/Software* or *NetManage* are supported by **IQ View**. Refer to your device documentation for instructions on configuring the software.

Testing Network Connectivity

Each TCP/IP protocol stack provides at least a PING Utility that can be used to test network connectivity between your node and another node on your network. This program sends a message to a remote station and waits for an echo response before sending another request.

Important: You can use this program to check if your adapter and TCP/IP protocol stack are installed properly.

Try to ping another station on the network and check if the remote node is responding. If the response is received then everything is installed properly.

Otherwise, something is wrong with your network configuration. First check if your NIC adapter card is connected and configured properly. Check to insure that there is no hardware conflicts on your system from the ***Start/Setting/Control Panel/System/Device Manager*** option. Run the diagnostic programs provided with your adapter. Refer to your device documentation to obtain advanced specific adapter settings *(Interrupt, I/O Range, DMA …)*.

If the adapter seems properly installed, check your TCP/IP protocol stack settings again.

Installing IQ View

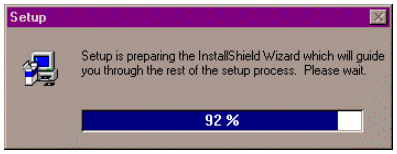
Once you have installed and tested the protocol stack you may continue to install **IQ View** and its related software.

Insert the **IQ View** CD in your CD-ROM drive. From ***Windows Explorer***, select the proper drive and double-click on the **SETUP.EXE** file.

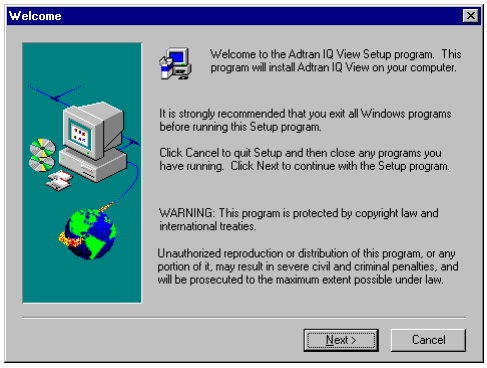
OR

Insert the **IQ View** CD in your CD-ROM drive. Select **Run** from the **Start Menu** located on the **Taskbar**. In the **File Run Dialog Box**, type the drive letter of your CD-ROM followed by "**:SETUP.EXE**". Click the **OK Button** or press <**ENTER**> to start the installation procedure.

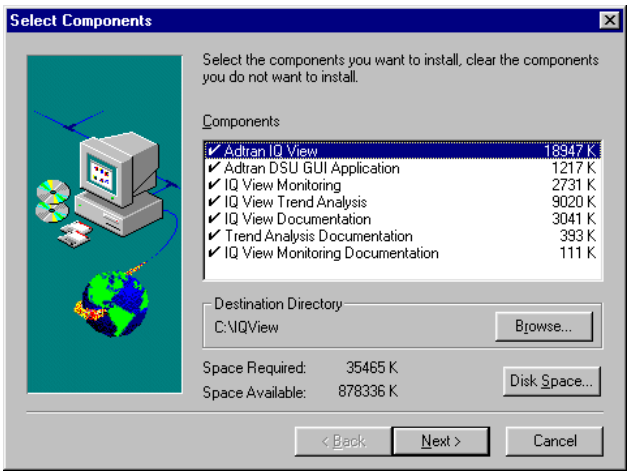
When the installation procedure is initiated, the **Setup Dialog Box** displays the progress of the **InstallShield Wizard** as a guide to the installation process.


Setup
Setup is preparing the InstallShield Wizard which will guide you through the rest of the setup process. Please wait.
92 %

Once the **InstallShield Wizard** has been properly set up, the **Welcome Dialog Box** is displayed:


Welcome
Welcome to the Adtran IQ View Setup program. This program will install Adtran IQ View on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

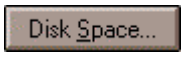
The **Welcome Dialog Box** welcomes you to the **IQ View Setup Program**. You may click on the **Cancel Button** at this time to terminate the **Setup Program**; you will be prompted to **Resume** or **Exit Setup**. To continue installing **IQ View**, click on **Next**. This opens the **Select Components Dialog Box** which allows you to select the **IQ View** components that you wish to install, and to specify the destination drive and directory where **IQ View** program files will be installed.


Select Components
Select the components you want to install, clear the components you do not want to install.
Components
✔ Adtran IQ View 18947 K
✔ Adtran DSU GUI Application 1217 K
✔ IQ View Monitoring 2731 K
✔ IQ View Trend Analysis 9020 K
✔ IQ View Documentation 3041 K
✔ Trend Analysis Documentation 393 K
✔ IQ View Monitoring Documentation 111 K
Destination Directory
C:\IQView
Browse...
Space Required: 35465 K
Space Available: 878336 K
Disk Space...
< Back
Next >
Cancel

From the **Components** list of the **Select Components Dialog Box**, deselect any component that you do not want to install by clicking on its corresponding check mark (✓); a check mark indicates the component is selected. All components are selected in the **Components** list by default.

Note: You must select at least one component in order to continue with the installation.

Click on the **Browse Button** to specify the drive and directory where **IQ View** will be installed. By default, **IQ View** is installed under **c:\winmanag**.



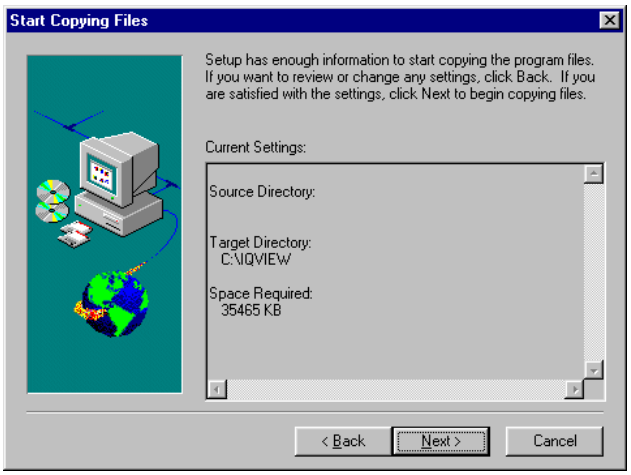
Click on the **Disk Space Button** to select a different destination drive, and to view disk space information for the specified drive.

Click on **Next** to continue the installation process according to the desired settings.

Cancel

Click on **Cancel** to terminate the **IQ View Setup Program**; you will be prompted to **Resume** or **Exit Setup**.

Once you click on the **Next Button** of the **Select Components Dialog Box**, the **Start Copying Files Dialog Box** is displayed:


Start Copying Files
Setup has enough information to start copying the program files. If you want to review or change any settings, click Back. If you are satisfied with the settings, click Next to begin copying files.
Current Settings:
Source Directory:
Target Directory:
C:\IQVIEW
Space Required:
35465 KB
< Back
Next >
Cancel

The **Start Copying Files Dialog Box** displays (**1**) the source drive and path of **IQ View** installation files, (**2**) the selected destination drive and directory where **IQ View** will be installed, and (**3**) the total disk space requirements for installation of the selected components.

At this point you can:

< Back

Click on the **Back Button** to return to the **Select Components Dialog Box** where you may review or change installation settings.

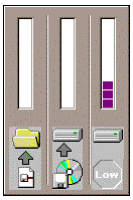
Cancel

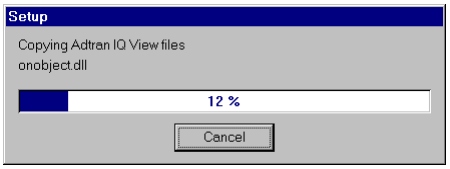
Click on **Cancel** to terminate the **IQ View Setup Program**; you will be prompted to **Resume** or **Exit Setup**.

Next >

Click on **Next** to accept the current settings and to continue with the installation process.

When the **Next** option is selected, the **IQ View Setup Program** begins copying files to the selected directory on the destination drive. A progress bar informs you of the status of the installation process.





You may click on the **Cancel Button** of the **Setup Dialog Box** at any time to terminate the **Setup Program**; you will be prompted to **Resume** or **Exit Setup**.

Once the **IQ View Setup Program** has finished copying the required files to the destination drive and directory, the **Registration Application** is activated; you may, at this point, register your software immediately or wait until the trial period ends. The registration process is described in the following section.

Registering Your Software

Registering **IQ View** varies according to the following three situations:

I. You have just purchased **IQ View** not having participated in the *IQ View 30-Day Trial Program.*

II. You are a participant of the *IQ View 30-Day Trial Program.*

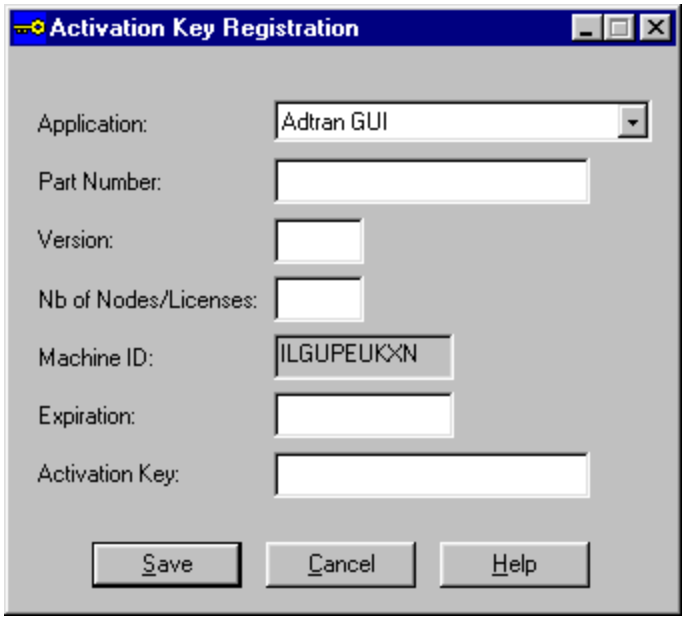
III. You have decided to purchase **IQ View** after participating in the *IQ View 30-Day Trial Program*.

I. Registering a Purchased Copy of IQ View

To receive your **Activation Key**, you must first complete the *Activation Key Registration Fax Form* and forward it to ADTRAN.

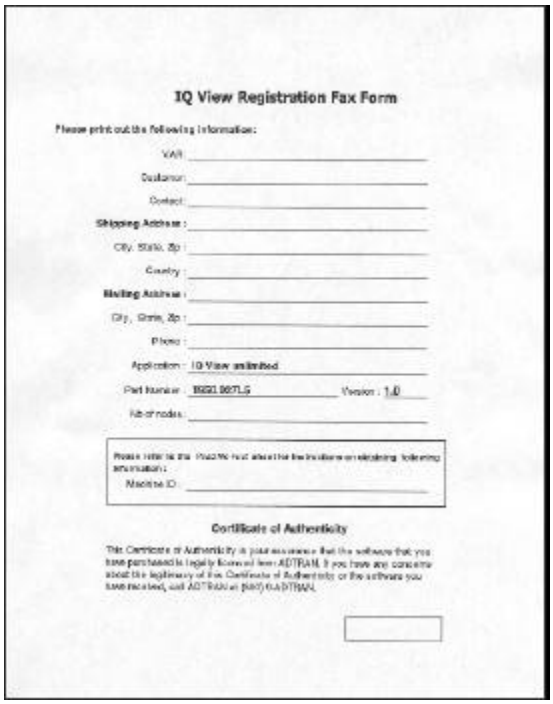
Aside from basic information such as your name, mailing address, title, e-mail address, etc., you will be required to enter, on the *Activation Key Registration Fax Form*, the **Machine ID** of the machine on which you have installed **IQ View**. The **Registration Application** automatically compiles this information; it is then

displayed in the **Activation Key Registration Dialog Box** which is immediately activated following installation of **IQ View**.

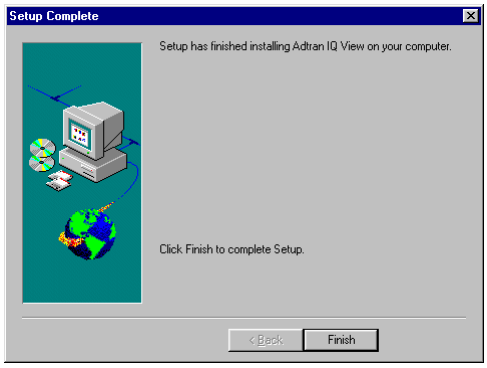


Once the **Registration Application** is active and the **Activation Key Registration Dialog Box** is displayed, do the following to register your copy of **IQ View**:

1. Select the product that you wish to register from the **Application** pick list.
2. Fill in the appropriate section of the *Activation Key Registration Fax Form* with the information from the **Machine ID** field of the **Activation Key Registration Dialog Box:**



3. Once you have taken note of the required information, click on **Cancel** to close the **Activation Key Registration Dialog Box**. This opens the **Setup Complete Dialog Box** which informs you that the software has been successfully installed:


Setup Complete
Setup has finished installing Adtran IQ View on your computer.
Click Finish to complete Setup.
< Back
Finish

4. Click on the **Finish Button** of the **Setup Complete Dialog Box** to exit the **Setup Program**.

5. Complete the remainder of the *Activation Key Registration Fax Form* and immediately forward it to your VAR by fax.

Consequent to receiving your *Activation Key Registration Fax Form*, your VAR will obtain the appropriate **Activation Key** which will be faxed back to you immediately on the **Activation Key Form**. The **Activation Key Form** will also contain the **Part** and **Version** numbers of your copy of the **IQ View** software, and the number of **nodes/licenses** that you have purchased; you will need this information to successfully register your copy of **IQ View**.

6. When you receive your **Activation Key** from your VAR, launch the **Registration Application** by doing the following:

   Double-click on the **keyregis.exe** file from ***Windows Explorer***. The **keyregis.exe** file is located in the same directory where the **IQ View** program files are installed; for example: **C:\<IQVIEW>\APPLS**.

   OR

   Select **Run** from the **Start Menu**. In the **File Run Dialog Box** type the drive and path where the **IQ View** program files are located, followed by **keyregis.exe**: **c:\<IQVIEW>\ APPLS\ keyregis.exe**; press <**ENTER**> or click on **OK** to start the **Registration Application**.

7. When the **Activation Key Registration Dialog Box** is activated, enter the **Part** number, **Version** number, and the number of **nodes/licenses** provided to you by your VAR into their corresponding fields. Next, type the **Activation Key** into the **Activation Key** field, and **0000/00/00** into the **Expiration** field.

Click on **Save** to store the **Activation Key** in the **IQ View** license file. At startup, **IQ View** checks the license file to verify that the correct **Activation Key** is entered. If any inconsistencies are found in the license file, it will display the relevant error messages.

Note: **Activation Keys** are case-sensitive. If you have saved incorrect information, you may overwrite the error.

Click on **Cancel** to close the **Activation Key Registration Dialog Box** without saving any information.

Click on the **Help Button** to obtain context-sensitive help on the **Registration Dialog Box**.

You should now be able to use **IQ View**. If, however, you are unable to do so, restart the **Registration Application** and verify that you have correctly entered all the necessary information. If the problem persists, contact ADTRAN immediately.

II. Evaluating IQ View

Note: If you are evaluating **IQ View** on a 30-day trial basis, the *Activation Key Registration Fax Form* is not enclosed with your copy of **IQ View**.

You are not required to furnish an **Activation Key** in order to use **IQ View** if you are a participant of the *IQ View 30-Day Trial Program*.

Once you have installed **IQ View**, you may use the software freely for a period of 30 days beginning with the day of installation. At the end of the 30-day trial period you will no longer be able to use **IQ View**. Please note that for a duration of five days prior to the end of the 30-day trial period, **IQ View** will intermittently display a message reminding you that you are nearing the end.

Important: You have the option of purchasing **IQ View** at the end of the 30-day trial period; refer to the next section for further information.

III. Purchasing IQ View Following the 30-Day Trial Period

If you decide to purchase **IQ View** at the end of the 30-day trial period, you must contact your VAR to request a copy of the *Activation Key Registration Fax Form*.

Once you receive your *Activation Key Registration Fax Form*, launch the **Registration Application** (see section **I** for instructions) and do the following:

1. When the **Activation Key Registration Dialog Box** opens, select the product that you wish to register from the **Application** pick list.
2. Taking the information from the **Machine ID** field of the **Registration Dialog Box**, fill out the appropriate section of the *Activation Key Registration Fax Form*.
3. Once you have taken note of the required information, click on **Cancel** to close the **Activation Key Registration Dialog Box**.
4. Complete the remainder of the *Activation Key Registration Fax Form* and immediately forward it to your VAR by fax.

Consequent to receiving your *Activation Key Registration Fax Form*, your VAR will obtain the appropriate **Activation Key** which will be faxed back to you immediately on the **Activation Key Form**.

5. When you receive your **Activation Key** from your VAR, launch the **Registration Application** and select once again, the product that you wish to register from the **Application** pick list.
6. Enter the **Part** number, **Version** number, and the number of **nodes/licenses** provided to you by your VAR into their corresponding fields. Next, type the **Activation Key** into the **Activation Key** field, and **0000/00/00** into the **Expiration** field.

Click on **Save** to store the **Activation Key** in the **IQ View** license file. At startup, **IQ View** checks the license file to verify that the correct **Activation Key** is entered. If any inconsistencies are found in the license file, it will display the relevant error messages.

Note: **Activation Keys** are case-sensitive. If you have saved incorrect information, you may overwrite the error.

Click on **Cancel** to close the **Activation Key Registration Dialog Box** without saving any information.

Click on the **Help Button** to obtain context-sensitive help on the **Activation Key Registration Dialog Box**.

You should now be able to use **IQ View**. If, however, you are unable to do so, restart the **Registration Application** and verify that you have entered the expiration date and **Activation Key** correctly. If the problem persists, contact ADTRAN immediately.

Viewing On-Line Documentation

The **IQ View** software includes complete on-line documentation. The document files are in the Adobe Acrobat™ PDF format, and can be found in the following location:

- The ***IQ View Foundation User's Guide***:

  <C>:\<**IQ View**>\docs\IQVIEW.PDF

To view this manual, you need the *Adobe Acrobat Reader* which is copied to your system during installation of **IQ View**. The Reader can be found in the following location:

<C>:\<**IQ View**>\docs\ACROREAD.EXE

You may install the *Adobe Acrobat Reader* on your system as follows:

- From ***Windows Explorer***, select the proper drive and path and double-click on the **ACROREAD.EXE** file.

OR

- Select **Run** from the **Start Menu**. In the **File Run Dialog Box**, type the drive and path of the **ACROREAD.EXE** file, followed by "**ACROREAD.EXE**". Click the **OK Button** or press <**ENTER**> to start the installation procedure.

Installing Device Management Software

After installing and testing **IQ View**, you can install specific device applications including the GUI applications, graphic, port configuration, and trap configuration applications related specifically to a particular device on your network.

Certain device-specific applications are provided with the **IQ View** CD-ROM; to install these applications, do the following:

1. Insert the appropriate CD into your CD-ROM drive. Select **Start/Run** from the toolbar. With the **Browse** option, you will find one directory for each device that you want to install.
2. Run the specific **\<Device Manufacturer>\SETUP.EXE** .

The process of installing device applications is exactly the same as installing **IQ View** itself. Refer to **Installing IQ View** earlier in this chapter for more information.

Starting the IQ View Foundation

You can start the **IQ View Foundation** using several methods:

- Double-clicking on its icon in the corresponding program group or folder.
- Clicking directly on a topology file using Explorer (TOP).
- Selecting *Start/Document* which keeps track of files opened from ***Windows Explorer***; select the specific topology file that you want to open.
- Automatic activation each time you start your computer. This option is often used on Network Management Systems. To do

so, move or copy the **IQ View Foundation** program icon to the **Startup** program group in ***Program Manager***.

Uninstalling the IQ View Foundation

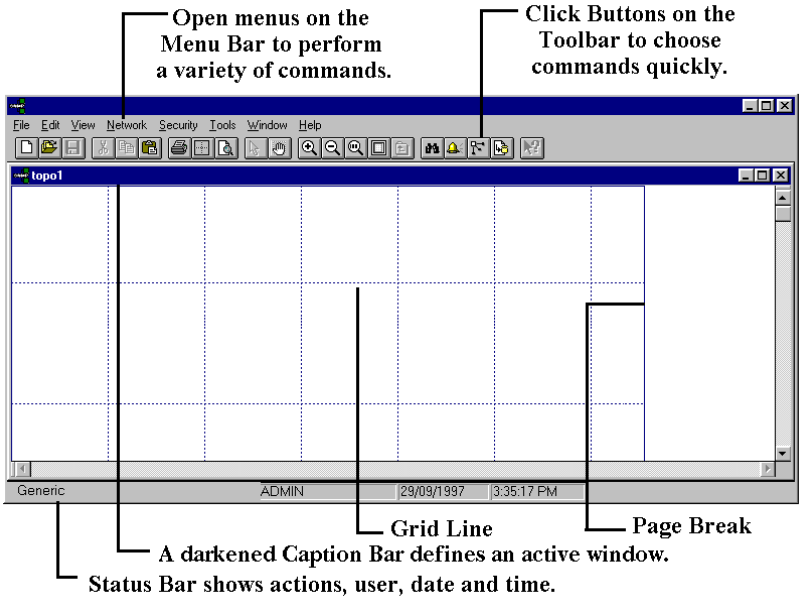
You can uninstall the **IQ View Foundation** by using *Start/Setting/Control Panel/ Add Remove Programs/Install-Uninstall.* Select the **IQ View Foundation** entry in the list.

Note: When uninstalling the **IQ View Foundation** you also uninstall all applications installed *under* the **IQ View Foundation**.

Chapter 4

Using the IQ View Foundation

Accessing and navigating between the **IQ View Foundation's** subsystems and applications is facilitated by the **Command Bar** and **Toolbar** interface described in this chapter.


Open menus on the Menu Bar to perform a variety of commands.
Click Buttons on the Toolbar to choose commands quickly.
File Edit View Network Security Tools Window Help
topo1
Generic
ADMIN
29/09/1997
3:35:17 PM
Grid Line
Page Break
A darkened Caption Bar defines an active window.
Status Bar shows actions, user, date and time.

Chapter Structure

This chapter is structured according to the following topics and subtopics:

- **Functionality Overview**
  - **File Menu**
  - **Edit Menu**
  - **View Menu**
  - **Network Menu**

- **Security Menu**
- **Tools Menu**
- **Windows Menu**
- **Help Menu**

- **Advanced Customization**

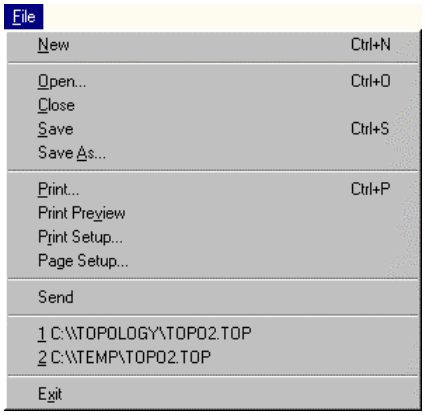
  - **The Options Dialog Box**

Functionality Overview

This section briefly describes the broad array of options available in the **IQ View Foundation's Command Bar Menus** and **Toolbar**.

File Menu

The **File Menu** defines global operations that you can perform on a map. It allows you to create, save, print, and send your **IQ View Foundation** map files as e-mail attachments.



NEW (CTRL-N) allows you to create a new document or map. The map can be a free-form map (one level that you can expand to multiple levels) or a map built from all the nodes defined in the **AutoDiscovery Database** (a two-level map; network and nodes).

The default name given to the new map by the **IQ View Foundation** is ***TOPO1***.

OPEN (CTRL-O) an existing map. This option will activate a generic ***File Open Dialog Box***. By default, the **IQ View Foundation's** map files are stored in the C:\ADTRAN\TOPOLOGY\ directory with the extension .TOP.

CLOSE an active map and its related submaps. You will be prompted to save the map file if you have not already done so.

SAVE (CTRL- S) an active map.

SAVE AS a different name. This option activates a generic ***Save As*** dialog box to save an active map under a different name.

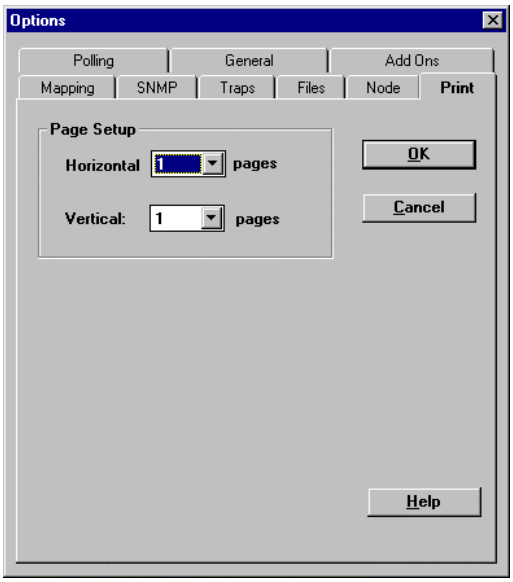
PRINT (CTRL-P) an active map. This option will activate a generic ***Print Dialog Box***. A dark band at the caption bar indicates active maps; a lighter band indicates inactive maps.

PRINT PREVIEW allows you to view/verify your map in the format it will take when printed.

PRINT SETUP allows you to add or configure a local or network printer in a generic ***Print Setup Dialog Box***. (Refer to your *Windows* documentation).

PAGE SETUP allows you to customize the page(s) of your map.

This option is also available in the **Tools Menu** under **Options**. The **Options Dialog Box** opens by default at the print folder; none of the other folders apply in this section.



Add horizontal or vertical pages to the map if you should require a larger work area. The **Page Setup Dialog Box** selects one page both horizontally and vertically as the default.

Adding Pages to the Map

1. Select the desired value from the **Horizontal** or **Vertical** pick list.
2. Click on **OK** to accept.

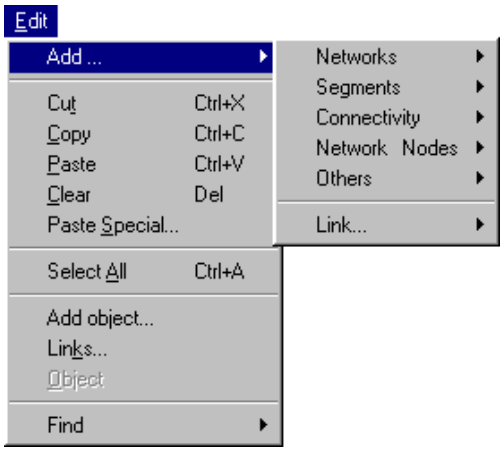
Objects already placed on the map automatically adjust their spacing when you change the number of pages.

SEND a copy of the map by e-mail. This option activates the generic mail application where the map file is attached by default. Attached files are located in a temporary directory called C:\\WIN95\TEMP*file name*. The **IQ View Foundation** must be installed on the node of the receiver for this option to function.

EXIT terminates the **IQ View Foundation**. You will be prompted to save your file if you have not already done so.

Edit Menu

The **Edit Menu** allows you to manipulate objects on your map.



ADD icons to the active map. Selecting this option opens a submenu from which you may select object icons to add to your network map. For further information, refer to **Adding Objects** in **Chapter 6** entitled **Building Maps**.

These object icons may also be displayed in Icon **Group Palettes**; refer to the **View Menu**.

- **NETWORKS** define Network types such as TCP/IP, SNA or Novell.
- **SEGMENTS** define the logical topology (Bus, Star, Ring).
- **CONNECTIVITY** defines device connectivity-specific SNMP-compliant devices (repeaters, bridges, routers).
- **NETWORK NODES** defines typical SNMP nodes such as stations or network servers.
- **OTHERS** define miscellaneous device, objects, buildings etc., helpful in enhancing your network map.

You may also display a palette of each of these object icons; refer to the **View Menu** for more information.

CUT (CTRL-X) a selected object from a map; it will be copied to the clipboard. Make multiple selections by holding the **Shift** key and clicking the desired objects. Use the ***Drag and Drop*** feature by clicking on the map and holding while selecting an area on your map. Upon releasing the mouse button, objects in that area will be selected.

COPY (CTRL-C) a selected object(s) from a map to the ***Clipboard***. Make multiple selections by holding the **Shift** key and clicking on the desired objects.

PASTE (CTRL-V) the contents of the ***Clipboard*** to the active map.

CLEAR (Del) a selected object from a map.

Note: **Cut**, **Copy** and **Clear** are activated only when an object is selected.

PASTE SPECIAL (CTRL-S) pastes a linked object on your map. For further information, refer to **Adding Objects** in **Chapter 6** entitled **Building Maps**.

SELECT ALL (CTRL-A) the objects on an active map.

ADD OBJECT allows you to include an external OLE object such as a graph, worksheet, map or text file.

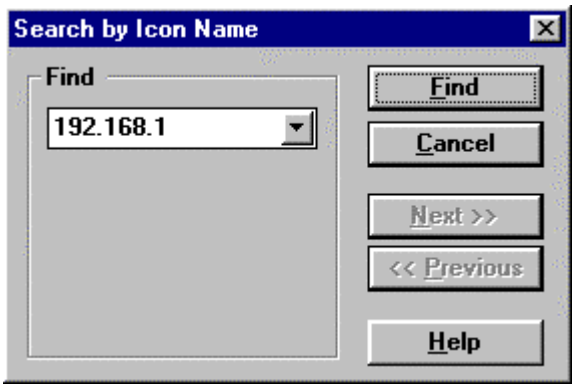
LINKS allows you to open a dialog box containing the file name of Objects that have been linked to the Network Map using the **Add Object** option. This option is activated only if the **Link** feature was selected in the **Insert Object Dialog Box** when adding an object to the map.

OBJECT remains entitled "*OBJECT*" only when it is de-activated (grayed-out). The functionality of the **Object** option is defined when an OLE object is selected on the map.

Note: All OLE options above are discussed in **Chapter 11** entitled **Using OLE Objects**.

FIND an object on your map by the icon name or network address in order to check for redundancies.

Selecting this option opens a submenu allowing you to find your object using either of the following methods: **Search by Icon Name Dialog Box** or **Search by Network Address Dialog Box,** respectively prompting you for the name or address of the icon you are searching for.



- Depending on the search you have selected, the **Find** fields in each dialog box respectively contain all Icon Names or Network Addresses found on your map.

Finding Objects in either Search Dialog Box

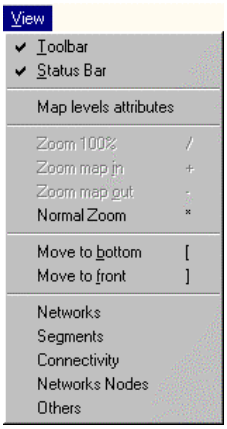
1. Highlight or enter the icon name or network address in the **Find** pick list.
2. Click on **Find** to begin searching for the specified object.

Other Options

- **CANCEL** will terminate the search and close the **Search Dialog Box**
- **NEXT** finds the next icon name or network address on the map corresponding to the parameters entered
- **PREVIOUS** returns you to the previously selected name or address
- **HELP** offers context-sensitive Help on the **Search** function

View Menu

The **View Menu** allows you to modify the appearance of the **IQ View Foundation's** main window.



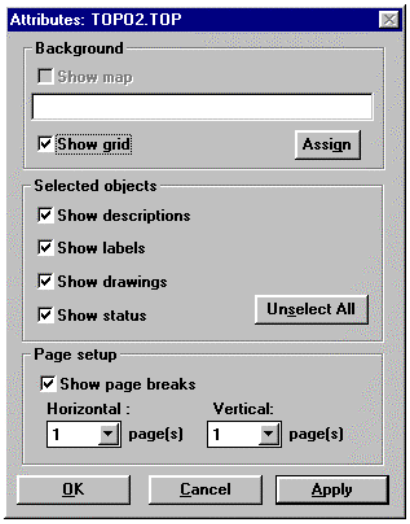
TOOLBAR appears under the **IQ View Foundation's Command Bar** and can be activated or deactivated from within the **View** menu; a ✓ before

indicates that the **Toolbar** is currently active.

STATUS BAR appears at the bottom of the **IQ View Foundation's** main window and can be activated or deactivated from within the **View** menu; a ✓ before

indicates that the **Status Bar** is currently active. The **Status Bar** displays the following from left to right; a description field indicating a comment on the last object selected on the map or on a selection made in the command bar as well as the current user name, date, and time.

MAP LEVEL ATTRIBUTES is a global map option that allows you to customize your map by manipulating background and objects.



This dialog box is divided into four sections:

- A **Background** section to further define the background area of your map.

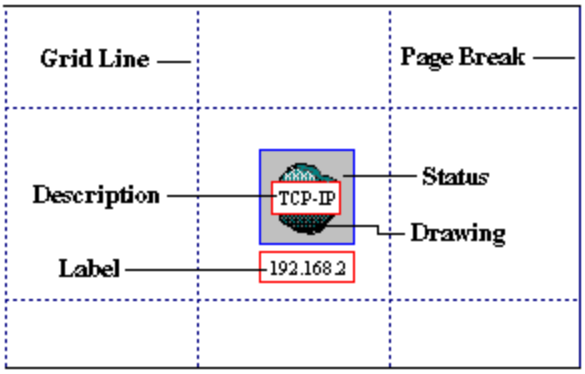
  Maps can be added to the background by clicking on ***Assign*** and then choosing the map where a ✓beside **Show Map** will place your selected map as a background. By default, each map has light colored lines drawn in a grid to help you place icons and objects on your map. Add/remove the grid by selecting/deselecting the **Show Grid** option.

- A **Selected Objects** section customizes each Object Icon on the Map. Objects can show descriptions, labels, drawings or status.

Customizing Object Icons

1. Click **Select All** to select all Network Object Icons on your Network map. The **Select All Button** changes to **Deselect All** when all objects are selected.
2. Select the options from the **Selected Objects** section that you wish your object icon to display on your Network Map. A check mark indicates what has been selected.
3. Use the **Apply Button** to preview your changes on the map before closing the **Attributes Dialog Box**.
4. Click on **OK** to accept the changes, or click on **Cancel** to close the dialog box without saving any changes.

5. Restore descriptions, labels, drawings or status to its default setting by opening the **Map Level Attributes Dialog Box** and selecting **Apply**.



- A **Page Setup** section to add pages (see ***Page Setup*** in the **File Menu**).
- A **Button Bar** to **Assign**, **Apply** or **Cancel** changes to your map.

ZOOM 100% (/) allows you to view 100% of your network map if you have been previously enlarging or condensing your map.

Note: This option remains inactive (grayed-out) if an object icon is selected; this option refers only to the size of the map itself.

ZOOM MAP IN (+) zooms in on an active map *or* on a selected icon object.

ZOOM MAP OUT (-) zooms out from an active map *or* from a selected icon object.

NORMAL ZOOM (1) returns the map to minimized view if currently in **Zoom 100%** view and (2) reverts the map to **Zoom 100%** view if currently in minimized view.

Note: **Normal Zoom** refers only to the size of the map itself and not to the size of an object icon.

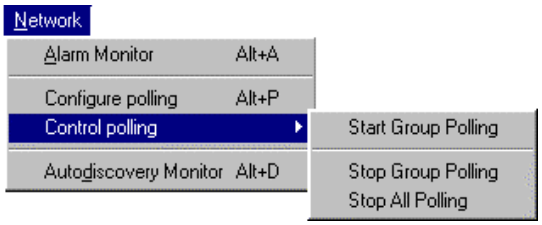
MOVE TO BOTTOM ([) moves the selected object under others if objects are arranged on the map so they overlap.

MOVE TO FRONT (]) moves the selected object over others if objects are arranged on the map so they overlap.

NETWORKS, **SEGMENTS**, **CONNECTIVITY**, **NETWORK NODES**, **OTHERS** allow you to access opened palettes of pre-designed **IQ View Foundation** object icons. These palettes are a graphic version of the **Add** submenu (**Edit Menu**) which offers only the name of the object icon. For further information, refer to **Adding Objects** in **Chapter 6** entitled **Building Maps**.

Network Menu

The **Network Menu** options allow you to activate the **IQ View Foundation's Alarm**, **Polling**, and **AutoDiscovery Monitors**. Most of these functions can also be accessed from the **Toolbar**.



ALARM MONITOR (Alt-A) activates the alarm monitor.

CONFIGURE POLLING GROUPS (Alt-P) allows you to modify, add and delete polling groups (see **Chapter 9** entitled **Polling Your Network** for more details).

CONTROL POLLING allows you to control the global polling activity (see **Chapter 9** entitled **Polling Your Network**) of the **IQ View Foundation** by querying a device to respond.

AUTODISCOVERY MONITOR (ALT-D) allows you to discover all SNMP and non-SNMP compliant nodes on your network thus allowing you to automatically generate a map of your network displaying its logical topology. (see **Chapter 8** entitled **Discovering Your Network** for more details).

Security Menu

The **Security Menu** allows you to configure the **IQ View Foundation's Security** subsystem. **New login** and **Logout** cannot be simultaneously activated (refer to **Chapter 5** entitled **Security** for more information).

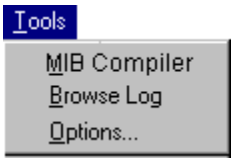
NEW LOGIN allows you to login as a new user and configure your access privileges. The default login is **ADMIN** and includes full access privileges. You must have previously logged out to use this option.

LOGOUT allows you to leave the **IQ View Foundation** without terminating the application. All configuration-related menu options at this point are disabled; viewing and printing options are still enabled.

ADMINISTRATION is enabled only if the logged-in user is the *Administrator*. This option allows the *Administrator* to create users, delete users, and modify the rights of users already defined (refer to **Chapter 5** entitled **Security** for more information).

Tools Menu

The **Tools Menu** accesses tools required by the **IQ View Foundation**.



MIB COMPILER allows you to compile MIB source files into a database format; refer to **Chapter 12** entitled **The MIB Compiler**.

BROWSE LOG displays the subsystem activity logs created each time the **IQ View Foundation** is started. All subsystem startup messages, object registration messages, and exceptional problems such as resource shortages are logged in this file.

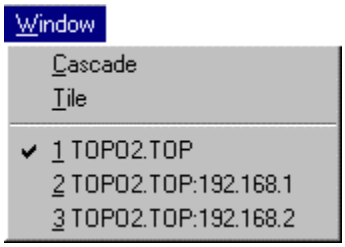
Network activity information (such as network alarms) is not recorded in this file, but *is* recorded in the Alarm Database. The ***LOGFILE.TXT*** file is located in the C:\IQVIEW\APPLS directory and can be edited using a text editor. Opening the **Options Menu** and selecting the **General** folder from the **Options Dialog Box** can modify the editor and the log file name.

NODE BROWSER is one application from the global program list. Define your own list with the **Add-On** option in **Advanced Customization** under the **Options Menu**.

OPTIONS allow you to customize various subsystem startup options. Selecting this option opens the **Options Dialog Box** which contains the following folders: (I) **Mapping**, (II) **General**, (III) **Add-On**, (IV) **Polling**, (V) **SNMP**, (VI) **Traps**, (VII) **Files**, (VIII) **Node**, (IX) **Print**. Refer to **Advanced Customization** later in this chapter for more information on the **Options Dialog Box**.

Windows Menu

The **Windows Menu** (specific to ***MDI Windows*** applications) allows you to select or organize your windows when dealing with multiple maps.



CASCADE arranges your various windows so they overlap.

TILE arranges your various windows into non-overlapping tiles.

Note: Open maps and related submaps are also displayed below the **Cascade** and **Tile** options in the Windows Menu. A ✓ indicates the currently active map.

Help Menu

The **Help Menu** displays four help options.

INDEX activates context-sensitive help on the **IQ View Foundation**.

USING HELP opens the generic Windows **Help Topics: Windows Help Dialog Box** listing such help topics as cutting and pasting, fonts, printing and settings.

VERSION INFO opens the **About Dialog Box** displaying a list of all files and their versions. This information can then be printed or saved to a file.

ABOUT ONMAP displays the **About Dialog Box** containing version and copyright information on the **IQ View Foundation**.

Advanced Customization

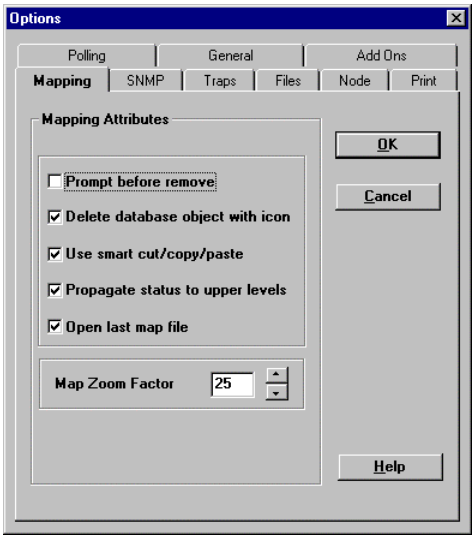
The Options Dialog Box

The **Options Dialog Box** contains the following nine folders:

- Mapping
- General
- Add Ons
- Polling
- SNMP
- Traps
- Files
- Node
- Print

Mapping

This folder defines the mapping attributes to help edit your map. This is the default folder.



PROMPT BEFORE REMOVE activates a warning message confirming whether you wish to delete an item on the map.

DELETE DATABASE OBJECT WITH ICON enables you to remove the object from the database when you remove the corresponding icon from the map.

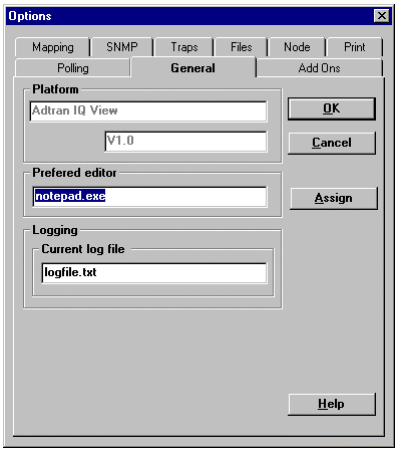
USE SMART CUT/COPY/PASTE allows you to cut, copy and paste the selected object on the map with its related database object. Not only the icon is copied but also the node attributes.

PROPAGATE STATUS TO UPPER LEVELS will reflect the icon status of the network submaps onto the Network map.

OPEN LAST MAP FILE will open the last file or map used when the **IQ View Foundation** is next started.

The **MAP ZOOM FACTOR** can be adjusted by highlighting a value in the pick list or typing in the increments. The **Zoom Map In** and **Zoom Map Out** function in the **View Menu** will be enlarged or condensed according to the selected increment.

General

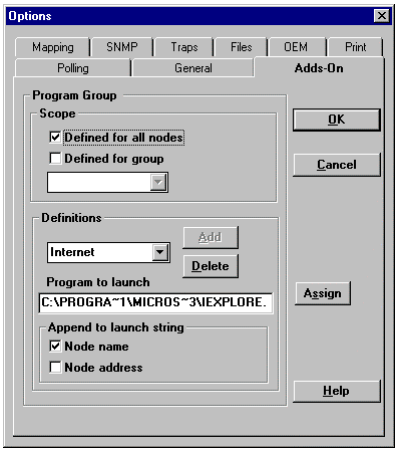


The **General** folder defines the general parameters of the **IQ View Foundation**. The file name of the preferred editor and the file name of the current log file are both shown here and can be changed.

- Select another editor by clicking on **Assign**.
- Assign another log file by typing the name in the **Current log file** field.
- Select **OK** to accept any changes you have made or **Cancel** to close the **Options Dialog Box**.

Add Ons

This folder defines add-on programs that can be assigned globally to the **IQ View Foundation** or to specific nodes. With this feature you can setup applications like the ***IP Management*** application (like **ICMP Ping** or **Telnet**), define advanced applications like a Web Browser, or call your custom external applications.



To add the application to the **IQ View Foundation**, you must first define the scope of this application using one of the following two options:

DEFINED FOR ALL NODES: The application will appear in the **Tools Menu** and can be launched for any node icon selected on the map.

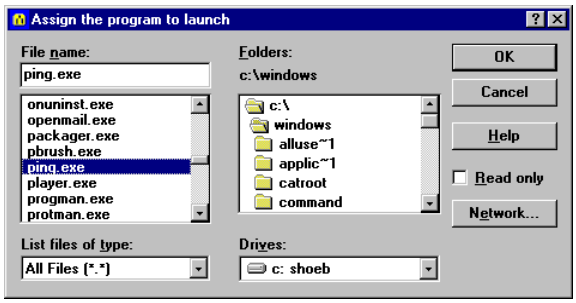
DEFINED FOR GROUP: Defines the application relative to devices from a specific manufacturer. The application can be launched from the **Right Mouse Button Menu**.

Important: The **Defined for all nodes** option allows you to add new options for all nodes on you map, whereas the **Defined for group** option allows you to target your add-on to specific devices.

Example 1: Setting the PING Utility for all Nodes

In this example we will be adding the **ICMP Ping** (***PING***) utility provided with the **Microsoft TCP/IP** Stack to all devices currently managed under the **IQ View Foundation**.

1. Open the **Options Dialog Box** by selecting **Options** from the **Tools Menu**.
2. Select the **Add Ons** folder.
3. Select the **Defined for all nodes** option by clicking on its corresponding radio button.
4. Type **ICMP Ping** in the **Definitions** field.
5. Click on the **Assign Button** next to the **Program to launch** field; this opens the **Program to launch Dialog Box**:



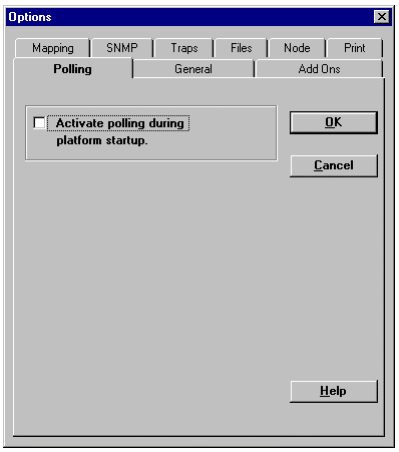
6. In the **Program to launch Dialog Box**, navigate to the *Windows* directory and select **ping.exe**.
7. If you want continuous pinging, add the following wildcard at the end of the program name in the **Program to launch** field:

   C:\windows\ping.exe **-t**

8. Select the **Node Address** option in the **Append to launch string** section.
9. Click on the **Add Button** in the **Definitions** section to finalize your settings and save your new **Add On** application.
10. Click on **OK** to close the **Options Dialog Box**.
11. Close and restart the **IQ View Foundation**. Your new **Add On** application should now appear in the **Tools Menu**.

Polling

The **Polling** folder defines the options for the **Polling** subsystem:

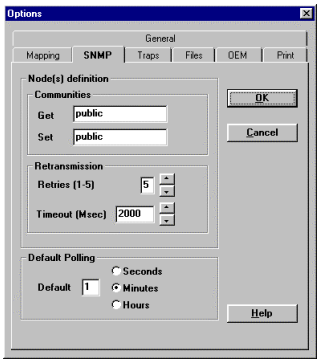


ACTIVATE POLLING DURING STARTUP: Select this option if you would like **Network Polling** to start when you activate the **IQ View Foundation**.

Note: This option polls the **Group** previously selected when the **Start Group Polling** function was last activated.

SNMP

The **SNMP** folder defines communities, retransmission and default polling used when adding a node to the map:



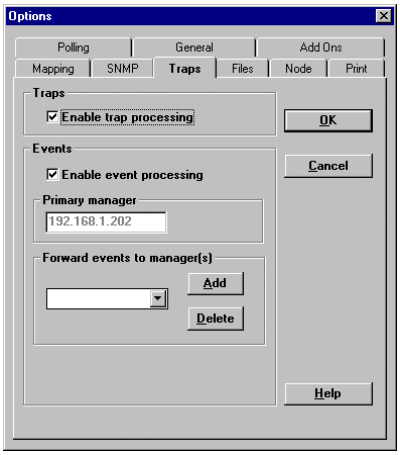
- Accept the **Community Names** (**Get** and **Set**) given by default or enter new names in the **Get** and **Set** fields.

- The **Retransmission** section allows you to define the number of times an SNMP request (**Get** or **Set**) is sent to the network after the timeout value is reached. A device that is unresponsive after a request is considered *not responding*. **Timeout** defines the maximum time required to wait for a response before the packet sent is considered lost.

- **Default Polling** allows you to adjust the polling interval (see *Network Polling* for more information).

Traps

The **Traps** folder defines the base parameters for your traps.



ENABLE TRAP PROCESSING allows to you to enable or disable trap processing that is performed by the **Alarm** subsystem. (See *Managing Alarms and Events* for more details). A ✓indicates this function is enabled.

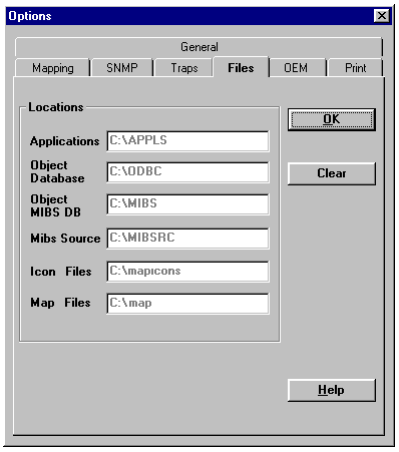
ENABLE EVENT PROCESSING allows you to enable or disable event processing performed by the Alarm subsystem. Event processing provides specific information on the current state of a particular node. A ✓ indicates this function is enabled.

FORWARD EVENTS TO MANAGERS sends the **IQ View Foundation's** internal events to another Network Management Platform. Add or remove target managers by entering their corresponding IP Address in the pick list.

Your station is always the first recipient (the primary manager address) and this field cannot be changed.

Files

The **Files** folder defines the location and the path for your reference of all files in the **IQ View Foundation**.

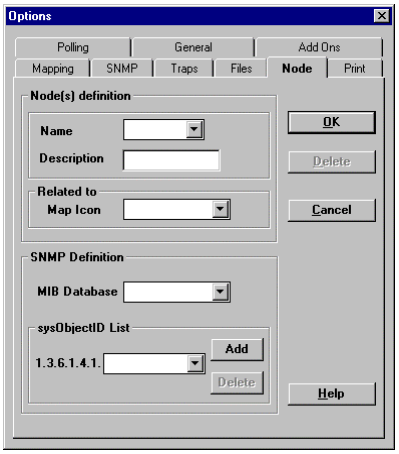


The **Clear** option purges the **AutoDiscovery Database**; all **AutoDiscovery** and current information about the nodes is destroyed.

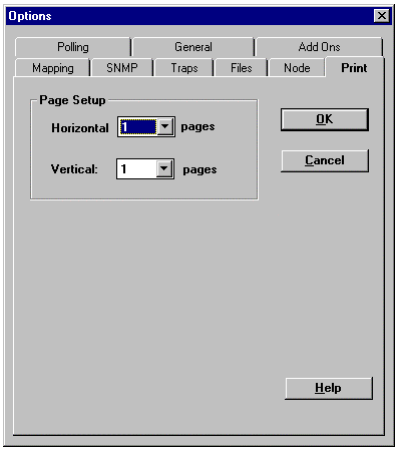
Important: Use this option only after an unrecoverable database failure.

Node

The **Node** folder defines the parameters used to add, modify or delete a device after using the **MIB Compiler** to compile a database (refer to **Chapter 12** entitled **The MIB Compiler** for more information).



Print



This folder defines the parameters used to set your page (refer to ***Page Setup*** under the **File Menu** earlier in this chapter).

Chapter 5
Security

Security is a way of determining who may access and/or configure the network and its various components. By limiting access to vital network management processes and sensitive network activity information, **Security** reduces network configuration errors and limits access privileges to users without a Network Administrator designation.

The **IQ View Foundation s Security** subsystem allows you to define users with distinct levels of access privileges. Users with a low priority level may only be granted access to specific network management processes and denied access to more sensitive areas of the network.

Chapter Structure

This chapter is structured according to the following topics:

- **Setting Security**
  - **Enabling Security**
  - **Disabling Security**
- **Accessing the IQ View Foundation**
  - **The Login Process**
  - **Login as a New User**
  - **Logging Off Without Closing**
  - **Standalone Mode**
  - **Closing the IQ View Foundation**
- **Managing Security**
  - **Activating the Administration Dialog Box**
  - **Layout of the Administration Dialog Box**
  - **Adding New Users**
  - **Deleting a User**
  - **Setting Access Privileges**

- **Enabling the Retries Function**

- **Changing Your Password**

Setting Security

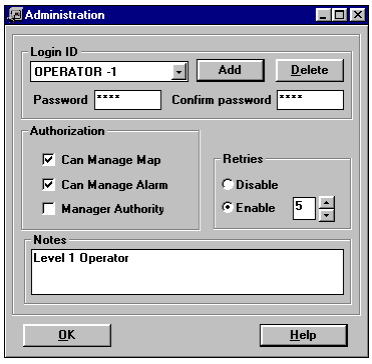
When you first install the **IQ View Foundation**, the built-in security feature is disabled. At startup, you are automatically logged into the system as **Admin**, which is the default user. You are not required to furnish a login password for **Admin**; and, because the **Admin** user possesses supervisory access privileges, you may use all **IQ View Foundation** subsystems and features without any restrictions.

If, however, you wish to limit user-access to the **IQ View Foundation** and its various subsystems, you can enable **Security** by defining a login password for **Admin**. Once you define a login password for **Admin**, the **IQ View Foundation** enables **Security** by prompting you for a **Login ID** and password each time the program is started.

Enabling Security

To enable **Security**, do the following:

1. Launch the **IQ View Foundation** if it is not already active.
2. When the main window is displayed, select the **Administration** option from the **Security Menu**; this activates the **Administration Dialog Box**:



For information on the usage of the **Administration Dialog Box**, refer to **Managing Security** later in this chapter.

3. Select **Admin** from the **Login ID** pick list if it is not already selected.

4. Enter the desired password in the **Password** field; the password is case-sensitive and may contain up to 10 alphanumeric characters.
5. Re-enter the password in the **Confirm Password** field exactly as you entered it in the **Password** field and click on the **OK Button**.

Important: Write down your **Admin** user login password and store it in a safe place. If you lose this password you will be unable to login to the system as the **Admin** user.

If you wish to test the new **Admin** login password, you must logout and attempt to re-login to the system as **Admin**. You are not required to exit the **IQ View Foundation** in order to logout; simply do the following:

1. Select the **Logout** option from the **Security Menu**; this deactivates all menu functions and terminates access to all subsystems.
2. Select the **Login** option from the **Security Menu**; this activates the **Login Dialog Box**:

   For information on the usage of the **Login Dialog Box**, refer to **The Login Process** later in this chapter.

3. Select **Admin** from the **Login ID** pick list if it is not already selected.
4. Enter the **Admin** login password in the **Password** field and click on the **Logon Button**.

If the password you entered is accepted, you will again be granted access to the system as the **Admin** user; all menu functions and subsystems will be re-enabled.

Now that **Security** is enabled, you will be required to login each time you activate the **IQ View Foundation.**

Disabling Security

If you wish, you may disable **Security** by removing the **Admin** password. There are two different methods you can use to remove the **Admin** password:

Method 1

1. Launch the **IQ View Foundation** if it is not already active and login as **Admin** once the **Login Dialog Box** is displayed.
2. When the main window is displayed, select the **Administration** option from the **Security Menu**; this activates the **Administration Dialog Box**.
3. Select **Admin** from the **Login ID** pick list if it is not already selected.
4. Remove the **Admin** password from both the **Password** and **Confirm Password** fields and click on **OK**.

Security is now disabled; the **Login Dialog Box** will not be displayed the next time you launch the **IQ View Foundation**.

Method 2

1. Launch the **IQ View Foundation** if it is not already active.
2. When the **Login Dialog Box** is displayed, select **Admin** from the **Login ID** pick list if it is not already selected and click on the **Change Password Button**. This activates the following dialog box:

Note: You may activate the **Login Dialog Box** even while the **IQ View Foundation** is active: first select **Logout** from the **Security Menu** and then select the **Login** option.

3. Enter the current **Admin** login password in the **Old password:** field.
4. Place your cursor in the **New password:** field and press the **ENTER** key without typing anything into this field; repeat this process in the **Confirm new password:** field.

5. Click on the **OK Button** to close this dialog box.

Security is now disabled; the **Login Dialog Box** will not be displayed the next time you launch the **IQ View Foundation**.

Accessing the IQ View Foundation

Accessing the **IQ View Foundation** involves the following:

- The Login Process
- Login as a New User
- Logging Off without Closing
- Standalone Mode
- Closing the **IQ View Foundation**

The Login Process

If **Security** is enabled, the **Login Dialog Box** is first displayed when you launch the **IQ View Foundation**:

The Login Dialog Box consists of the **Login ID** pick list where you may select your **Login ID**. It also displays the **Login ID** of the operator previously logged into the **IQ View Foundation**, and the date and time at which the previous login process took place. The **Login Dialog Box** also includes the **Change Password Button**, which can be used to change your current password.

To continue with the **Login** process, do the following:

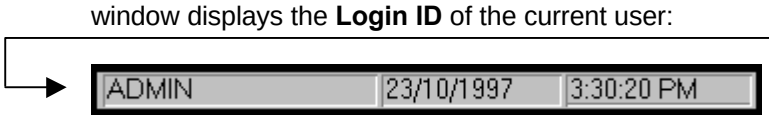
1. Select your **Login ID** from the **Login ID** pick list. If you have not yet defined additional users, select **Admin**; refer to **Adding New Users** in the **Managing Security** section later in this chapter for information on adding users.

Note: The **Admin Login ID** is always displayed first in the **Login ID** pick list.

2. Enter your login password in the **Password** field.
3. Click on the **Logon Button**.

The **Logon Program** validates your **Login ID** and password; if they correspond, the **IQ View Foundation** then loads all critical network management processes.

When the startup process is complete, the **Status Bar** in the main window displays the **Login ID** of the current user:

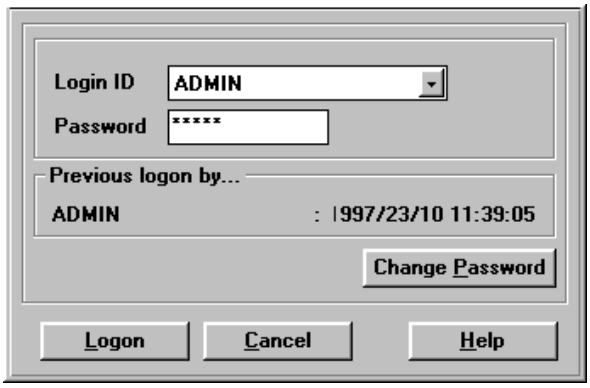


Login as a New User

The **IQ View Foundation** allows you to login as a different user without closing the application. This is particularly useful in environments where different users with varying access privileges share a single system running the **IQ View Foundation**.

To login as a different user, follow the steps below:

1. Select the **Logout** option from the **Security Menu**; this deactivates vital menu functions and terminates access to all **IQ View Foundation** subsystems.
2. Select the **Login** option from the **Security Menu**; this activates the **Login Dialog Box**:



3. Select the desired **Login ID** from the **Login ID** pick list.
4. Enter the appropriate login password in the **Password** field and click on the **Logon Button**.

If the password you entered is accepted, you will be granted access to the system; all menu functions and **IQ View Foundation** subsystems will be reactivated according to your access privileges.

Logging Off without Closing

If you wish to log off without terminating the **IQ View Foundation**, simply do the following:

- Select the **Logout** option from the **Security Menu**:

This function disables all vital menu options, but does not terminate any subsystems; the application is considered to be in **Standalone Mode**.

Standalone Mode

When you log off without closing the **IQ View Foundation**, the application enters **standalone mode** where no operator is logged on.

In this mode:

- The **AutoDiscovery Scheduler** remains active
- **Polling** can still check node connectivity
- The **Alarm** subsystem still processes incoming traps

This mode can be useful for a standalone distributed management station where an operator is not required, or for a network monitoring station used simply to monitor network activity.

Closing the IQ View Foundation

When you close the **IQ View Foundation** using either the **Exit** option of the **File Menu**, or **Alt + F4**, you are implicitly **logging off** the system. Please note that it can take a while (typically less than 10 seconds) to close all databases and subsystems. Additionally, you will be prompted to save the current open map if you have not already done so.

Managing Security

Manage the **IQ View Foundation's Security** subsystem as follows:

- Add and define new user profiles.
- Delete existing user profiles.
- Manage user access privileges by restricting access to network management processes and network activity information.

Note: The above tasks are reserved for Network Administrators and users with supervisory access privileges only.

All tasks pertaining to the management of the **IQ View Foundation s Security** subsystem are accomplished using the **Administration Dialog Box**:

Activating the Administration Dialog Box

Activate the **Administration Dialog Box** as follows:

- Select the **Administration** option from the **Security Menu**.

Note: If the user currently logged-in to the system does not have supervisory access privileges (**Admin**), the **Administration** option of the **Security Menu** is deactivated.

Layout of the Administration Dialog Box

The **Administration Dialog Box** allows you to (**1**) add new users; (**2**) delete existing users; (**3**) configure user access privileges; and (**4**) define login passwords for users. It consists of the following sections:

Login ID

The **Login ID** section includes the **Login ID** pick list; this pick list contains the list of users authorized to access the **IQ View Foundation.** Click on **Add** or **Delete** to either add a new user to the

Login ID pick list or delete an existing user. You may also define a login password for a particular user by entering the desired password in both the **Password** and **Confirm Password** fields. For information on creating and deleting users, refer to **Adding New Users** and **Deleting a User** respectively later in this chapter.

Authorization

The **Authorization** section allows you to set access privileges for users. Refer to **Defining Access Privileges** later in this chapter.

Retries

The **Retries** section allows you to determine the number of times a user may attempt to login to the **IQ View Foundation** (with an incorrect password) before access is denied. Refer to **Enabling the Retries Function** later in this chapter for further information on the usage of this function.

Notes

The **Notes** section allows you to provide additional information about a user (address, telephone number, e-mail address, etc.). Entering information into this field is optional.

Button Bar

The **Button Bar** in the **Administration Dialog Box** includes the following two buttons:

OK

Click on **OK** to save your changes and close the **Administration Dialog Box**.

Help

Click on **Help** to activate context-sensitive help on the **Administration Dialog Box**.

Adding New Users

By default, the **IQ View Foundation** is pre-installed with the Admin user. The Admin user possesses supervisory access to all subsystems and functions. You cannot delete the Admin user, nor modify any of its access privileges. You may, however, add new users with access privileges equivalent to the Admin user; conversely, you may add users with limited access privileges.

Note: Only Admin and users with supervisory access privileges may add new users.

To add a new user, do the following:

1. Activate the **Administration Dialog Box** if it is not already active (see **Activating the Administration Dialog Box** earlier in this chapter).
2. When the **Administration Dialog Box** is displayed, click on the **Add Button** in the **Login ID** section; this activates the **Add User Dialog Box**:

3. Enter a **Login ID** for the new user in the **Add User Dialog Box**; the **Login ID** may contain up to 15 alphanumeric characters.
4. Click on the **OK Button** to save the new user and close the **Add User Dialog Box**.

The new user's **Login ID** now appears in the **Login ID** pick list of the **Administration Dialog Box**.

5. If you wish to define a login password for the new user, enter it into the **Password** field; you must then re-enter the same password in the **Confirm password** field.

Note: The user or the designated Network Administrator may modify the login password at any time. Refer to **Changing Your Password** later in this chapter.

Now that you have added a new user, you must set access privileges for this user. Refer to **Setting Access Privileges** later in this chapter.

Deleting a User

To delete an unwanted user from the **Login ID** pick list, follow the steps:

1. Activate the **Administration Dialog Box** if it is not already active (see **Activating the Administration Dialog Box** earlier in this chapter).
2. Once the **Administration Dialog Box** is displayed, from the **Login ID** pick list, and select the **Login ID** of the user you wish to delete.

Note: By default, when the **Administration Dialog Box** is activated, the Admin user is always displayed first in the **Login ID** pick list.

3. Click on the **Delete Button**; the user is immediately removed from the **Login ID** pick list.

Important: This function is irreversible; you cannot restore a deleted user.

Setting Access Privileges

The **IQ View Foundation s Security** subsystem allows you to define *three* distinct user groups based on access privileges:

Administrator/Supervisor

The **Network Administrator** possesses unrestricted access to all subsystems and functions.

Note: The built-in Admin user, which cannot be deleted or modified, falls into this category.

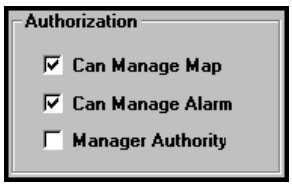
Operator

The **Operator** possesses limited access privileges to the **IQ View Foundation's** subsystems and functions. Some **Operators**, however, may be given increased access privileges than others (see ***Table 1***). For example: certain users with **Operator** status may be authorized to manage **Security** (add and delete users, and modify user access privileges) and manipulate network maps, but may be unable to access the **Alarm** and **Polling** subsystems. While others still may be given access to the **Alarm** and **Polling** subsystems, but may not be authorized to manage SNMP-compliant devices over the network.

Observer

The **Observer** may only view and print the default network map and cannot access any other subsystem or function.

User access privileges are set using the **Authorization** section of the **Administration Dialog Box**:



The **Authorization** section of the **Administration Dialog Box** contains the following three options:

Can Manage Map

Selecting this option authorizes the user to create, modify, and destroy network maps and manipulate objects on maps. Additionally, the user is also authorized to manage **Security** (add and delete users, and modify user access privileges). To activate this option, simply click on its radio button (a check mark indicates the option is currently active).

Can Manage Alarm

Selecting this option allows the user to access the **Polling** and **Alarm** subsystems. To activate this option, simply click on its radio button (a check mark indicates the option is currently active).

Manager Authority

Selecting this option authorizes the user to manage SNMP-compliant devices over the network (activate a GUI and configure/modify MIB Object values for the corresponding device). To activate this option, simply click on its radio button (a check mark indicates the option is currently active).

The following table demonstrates how to set access privileges for a **Network Administrator**, **Operator**, and **Observer**:

Table 1

User	Steps	Access Privileges
Network Administrator	• From the **Login ID** pick list of the **Administration Dialog Box** and select the user for whom you wish to modify access privileges. • Select **all** three options (**Can Manage Map**, **Can Manage Alarm**, **Manager Authority**) in the **Authorization** section by clicking on their corresponding radio buttons. • Click on **OK** to save your modifications and close the **Administration Dialog Box.**	No access restrictions
Level 1 Operator	• From the **Login ID** pick list of the **Administration Dialog Box** and select the user for whom you wish to modify access privileges. • Select **both** the **Can Manage Map** and **Manager Authority**	1. **Authorized** to create, modify, and destroy network maps and manipulate objects on maps 2. **Authorized** to manage Security (add and delete users, and modify user access privileges) 3. **Authorized** to manage

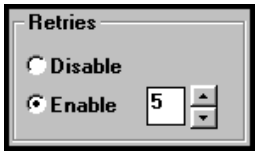
User	Steps	Access Privileges
	options in the **Authorization** section by clicking on their corresponding radio buttons. • Click on **OK** to save your modifications and close the **Administration Dialog Box.**	SNMP-compliant devices over the network (activate a GUI and configure/modify MIB Object values for the corresponding device) 4. **Authorized** access to all subsystems with the **exception** of the **Alarm** and **Polling** subsystems
Level 2 Operator	• From the **Login ID** pick list of the **Administration Dialog Box** and select the user for whom you wish to modify access privileges. • Select **both** the **Can Manage Map** and **Can Manage Alarm** options in the **Authorization** section by clicking on their corresponding radio buttons. • Click on **OK** to save your modifications and close the **Administration Dialog Box.**	1. **Authorized** to create, modify, and destroy network maps and manipulate objects on maps 2. **Authorized** to access all subsystems **including Alarm** and **Polling** 3. **Authorized** to manage Security (add and delete users, and modify user access privileges) 4. **Not authorized** to manage SNMP-compliant devices over the network (activate a GUI and configure/modify MIB Object values for the corresponding device)
Level 3 Operator	• From the **Login ID** pick list of the **Administration Dialog Box** and select the user for whom you wish to modify access privileges. • Select **both** the **Can Manage Alarm** and **Manager Authority** options in the **Authorization** section by clicking on their corresponding radio	1. **Authorized** to access **only** the **Alarm** and **Polling** subsystems 2. **Authorized** to manage SNMP-compliant devices over the network (activate a GUI and configure/modify MIB Object values for the corresponding device) 3. **Not authorized** to create, modify, and destroy network maps and manipulate

User	Steps	Access Privileges
	buttons. • Click on **OK** to save your modifications and close the **Administration Dialog Box.**	objects on maps 4. **Not authorized** to manage Security (add and delete users, and modify user access privileges)
Level 4 Operator	• From the **Login ID** pick list of the **Administration Dialog Box** and select the user for whom you wish to modify access privileges. • Select only **one** of the three options in the **Authorization** section by clicking on the corresponding radio button. • Click on **OK** to save your modifications and close the **Administration Dialog Box.**	Access privileges will depend on the option selected
Observer	• From the **Login ID** pick list of the **Administration Dialog Box** and select the user for whom you wish to modify access privileges. • **Deselect** all options in the **Authorization** section. • Click on **OK** to save your modifications and close the **Administration Dialog Box.**	Can only View/Print the default network map; the **Observer** cannot access any other subsystem or function

Enabling the Retries Function

Enabling the **Retries** function allows you to set the number of times a particular user may attempt to login to the **IQ View Foundation** (with an incorrect password) before access is denied.

To enable the **Retries** function and set the **Retries** limit, do the following:



1. Activate the **Administration Dialog Box** if it is not already active (see **Activating the Administration Dialog Box** earlier in this chapter)
2. From the **Login ID** pick list, select the user for whom you wish to set a **Retries** limit.
3. In the **Retries** section of the **Administration Dialog Box**, select the **Enable** option by clicking on its radio button; this activates the **Limit** field, which otherwise appears grayed-in (deactivated).
4. Enter the desired limit (from 1 to 99) in the **Limit** field.
5. Click on the **OK Button** to save your changes and close the **Administration Dialog Box**.

This function will take effect the next time the user attempts to login to the system.

Changing Your Password

The **Security** subsystem offers two methods of changing your login password:

Method 1

Important: To use this method you must have a Network Administrator designation. If you do not have supervisory access privileges, refer to ***Method 2***.

1. Activate the **Administration Dialog Box** if it is not already active (see **Activating the Administration Dialog Box** earlier in this chapter).
2. Select your **Login ID** from the **Login ID** pick list.
3. Place your cursor in the **Password** field and erase the current password if one exists.
4. Enter you new password; passwords are case-sensitive and may contain up to 10 alphanumeric characters.

5. Place your cursor in the **Confirm password** field and erase the current password if one exists.
6. Re-enter your new password in the **Confirm password** field, making sure to enter it exactly as you did in the **Password** field.
7. Click on **OK** to save your new password and close the **Administration Dialog Box**.

The change will take effect the next time you login.

Method 2

Important: To use this method **Security** must be enabled; refer to **Enabling Security** earlier in this chapter.

1. Launch the **IQ View Foundation**.
2. When the **Login Dialog Box** is displayed, select your **Login ID** from the **Login ID** pick list and click on the **Change Password Button**. This activates the following dialog box:

Note: You may activate the **Login Dialog Box** even while the **IQ View Foundation** is active: first select **Logout** from the **Security Menu** and then select the **Login** option.

3. Enter you current login password in the **Old password:** field.
4. Place your cursor in the **New password:** field and enter your new password.
5. Re-enter your new password in the **Confirm new password:** field, making sure to enter it exactly as you did in the **New Password:** field.
6. Click on the **OK Button** to accept your new password and close this dialog box.
7. To continue with the **Login** process, enter your new password in the **Password** field of the **Login Dialog Box**.

If the password you entered is accepted, you will be granted access to the system; all menu functions and subsystems will be activated according to your access privileges.

Chapter 6
Building Maps

The functionality of the **Mapping** subsystem is twofold:

- A **Network Map** displays the logical topology of your network; while a single network is assigned a single map, each subnet is assigned its own map in a separate window within one or more logical page sets.

Note: From this point forward, *map* will refer also to submap and *network* will refer to subnet or segment unless otherwise indicated.

- The **Network Map** is the interface from which you may launch all other subsystems (**Security**, **AutoDiscovery**, **Alarm**, **Polling**, **MIB Compiler**) *as well as* other network management applications (GUIs and the **Threshold Application**).

This chapter will deal only with the former functionality mentioned above. Concerning the latter, refer to the corresponding chapter in this or other manuals as needed.

Chapter Structure

This chapter is structured according to the following topics and subtopics:

- **Creating/Accessing Your Network Map**
  - **Initial Usage**
  - **Subsequent Usage**
- **Map Structure**
  - **Background Map**
  - **Icon Objects**
  - **Text/Embedded OLE Objects**

- **Manipulating Maps**
  - **Placing Objects on the Map**
  - **Manipulating Objects on the Map**

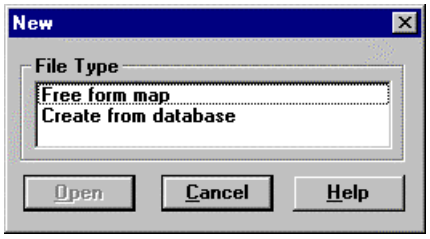
Creating/ Accessing Your Network Map

Initial usage of your network map differs from subsequent usage. The following applies to either case:

- The **IQ View Foundation** can display up to **10** maps.
- When saving, the default extension is **.TOP**.

Initial Usage

1. **AutoDiscover** your network map; refer to **Chapter 8** entitled **Discovering Your Network** for more information.
2. Highlight the **File Menu**.
3. Select **New** to open the **New Dialog Box**:



- Select **Free form map** to open a blank map on which you may customize your network map.
- Select **Create from database** to display your network map according to the **AutoDiscovery Database** on which you may still continue to modify/customize your network map.

Subsequent Usage

1. Activate the **IQ View Foundation**. Subsequent activation of the **IQ View Foundation** causes the blank TOPO1.TOP map to open by default. You may however configure the **IQ View Foundation** to reopen by default the *last* opened map file, as follows:

   - Highlight the **Tools Menu**.
   - Select the **Options** option.
   - Select the **Mapping** folder.
   - Select the **Open last map file** option.
   - Click on the **OK Button**.
   - Close and reactivate the **IQ View Foundation**.

2. Select the **File Menu** followed by the **Open** option to open a generic **File Open Dialog Box** from which you may select your network map file.

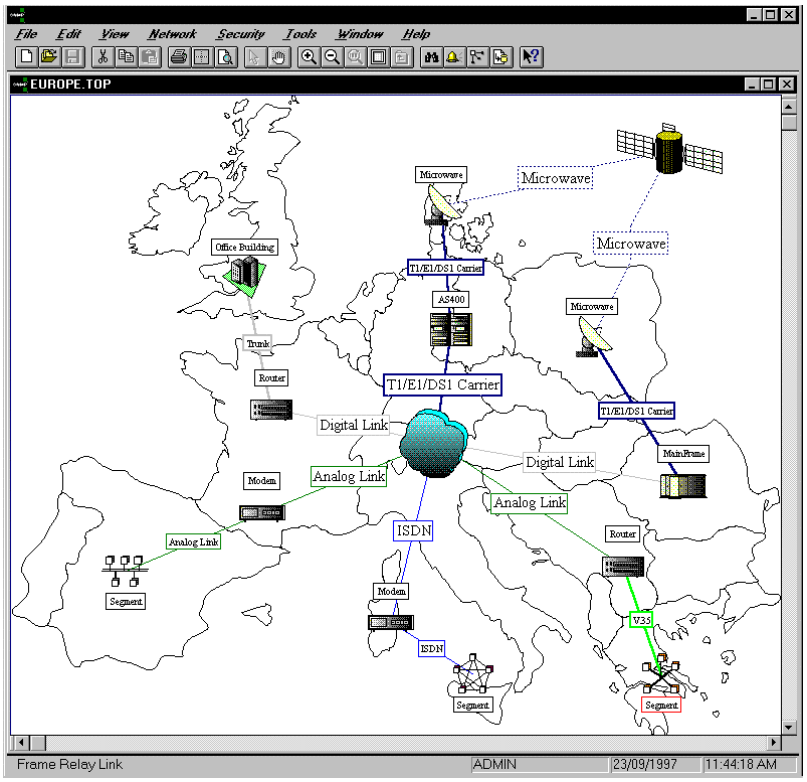
Note: Although the **AutoDiscovery Monitor Dialog Box** enables you to **Add new nodes only** to an already-discovered network map, this option only *enters* these newly discovered nodes into the **AutoDiscovery Database**; refer to **Chapter 8** entitled **Discovering Your Network** for more information. You may display each newly discovered node on your network map by the following options:

- Add the **Icon Object** manually using the instructions in the **Creating/Modifying Your Network Map** section later in this chapter.
- Follow steps **2-3** from the **Initial Usage** subsection and select **Create from database**.

Map Structure

The network map is composed of the following:

- Background Map
- Icon Objects
- Text/Embedded OLE Objects



Background Map

The **Background Map** is the surface on which the logical display of your network is superimposed. This surface may take either or both of the following formats:

- **BACKGROUND MAP LAYOUT** allows you to strategically display your node icons on a country or continent **Background Map Layout** to better reflect your WAN.

- **BACKGROUND GRID LAYOUT** allows you to deposit your node icons within a grid to better isolate one node from another.

Each of the above may be customized according to your network management needs. **Background Map** and **Background Grid Layout** selections are not fixed and may be repeatedly modified in the **Map Level Attributes Dialog Box**; refer to **Chapter 4** entitled **Using the IQ View Foundation**.

Icon Objects

Refer to the section on **Icon Object Layout** in this chapter as well as to **Chapter 7** entitled **The Mouse Right Button Menu** for more information.

Text/Embedded OLE Objects

Refer to **Chapter 11** entitled **Using OLE Objects** for more information.

Manipulating Maps

Manipulating maps refers to the following:

- Placing Objects on the Map
- Manipulating Objects on the Map

Placing Objects on the Map

The **IQ View Foundation** supports the following objects on the network map. They are divided into two categories:

ICON OBJECTS including the following:

- Network Icons
- Segment Icons
- Connectivity Icons
- Network Node Icons
- Other Icons

For more information on each of the above, refer to their corresponding sections later in this chapter.

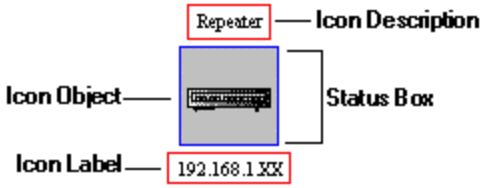
OLE OBJECTS including the following:

- Text OLE Objects
- Embedded OLE Objects

The functionality of these Icon/OLE Objects is to display your network connectivity upon your **Background Map** and to provide you with configuration access to the devices/nodes/texts/miscellaneous items they represent.

Icon Object Layout

Although differing in functionality, the basic layout of each **Icon Object** is similar. Most of the items identified in the following illustration are therefore common to each of the objects; some variances do however exist between **Icon object** *types*.



- The **Description** is located above the **Icon Object** and may be modified only for a **Connectivity**, **Network Nodes**, and **Others Icon Object**.

- The color within the **Status Box** enclosing the **Icon Object** indicates its status as follows:

Status Box Color	Device Status
Bright Red	Major Alarm
Dark Red	Minor Alarm
Green	Normal
Army Green	Warning
Grey	Unmanaged

- The **Icon Object** is located in the center of the icon and cannot be modified.

- The **Icon Label** is located at the bottom of the icon, and can be edited directly from the map through the **Attributes Dialog Box**; refer to the section on the **Attributes Dialog Box** later in this chapter.

Icon Object Customization

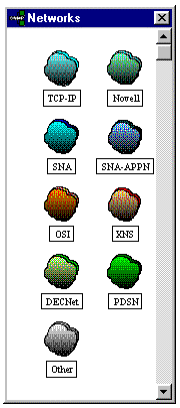
You may customize each **Icon Object** to show/hide the **Icon Description**, **Status Box**, **Icon Object**, and/or **Icon Label** on your network from the following:

Icon Object Mouse Right Button Menu; refer to **Chapter 7** entitled **The Mouse Right Button Menu** for more information.

Map Level Attributes Dialog Box; refer to **Chapter 4** entitled **Using the IQ View Foundation** (***View Menu*** subsection).

Network Icons

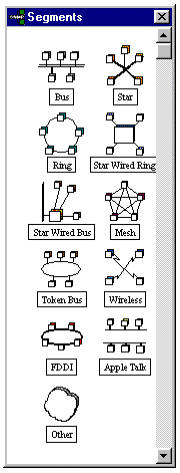
Network Icons may be distinguished on your network map by their color and are defined according to the protocols shown in the following *screen capture*:



Network Icons are used to represent your various supported network types. Double-clicking on any **Network Icon** automatically selects the corresponding submap; refer to the **Manipulating Objects on the Map** section later in this chapter for specific instructions on manipulating your network map.

Segment Icons

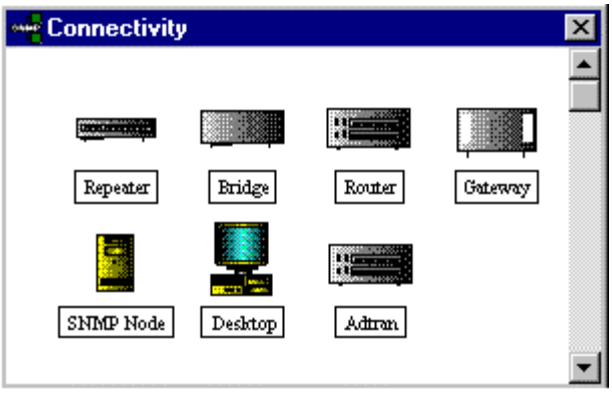
The distinctiveness of each **Segment Icon** is due to their graphic depiction of the particular logical topology they represent. **Segment Icons** are defined according to the topologies shown in the following *screen capture*.



Segment Icons are used to identify a specific submap according to its topology. Double-clicking on any **Segment Icon** automatically selects the corresponding submap; refer to the **Creating/Modifying Your Network Map** section later in this chapter for specific instructions on manipulating your **Segment** map.

Connectivity Icons

Connectivity Icons depict all the network elements such as SNMP repeater, bridge, router or other connectivity devices.



Generic **Connectivity Icons** are used to represent:

- The corresponding device that is unmanaged by the **IQ View Foundation** and therefore unmanageable by an **IQ View Foundation** GUI, unless such a device is (**a**) **Auto-Discovered** *or* (**b**) added manually *and* identified in the **Attributes Dialog Box**.
- An unknown SNMP-compliant connectivity node which takes the icon form of an SNMP Node. Until you identify the SNMP Node either through the **Node Browser Dialog Box** or the **Attributes Dialog Box**, double-clicking on such a **Connectivity Icon** prompts an error message. Refer to **Chapter 7** entitled **The Mouse Right Button Menu** for more information.

Although each **Connectivity Icon** represents a particular SNMP-compliant connectivity node, these nodes *may* or *may not be* manageable by the **IQ View Foundation**.

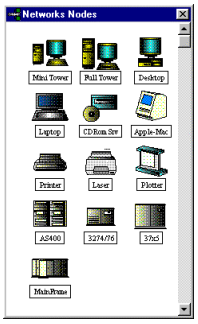
Manageable Connectivity Icons

***Manageable* Connectivity Icons** do not only represent the managed devices on your network, but *also* display the exact graphical representation of the device itself in the **Icon Object**; double-clicking on such an icon activates the GUI. Refer to the corresponding GUI manual for more information.

Note: Any list of **IQ View Foundation** -Manageable **Connectivity Icons** is dependent on those devices discovered on your network.

Network Node Icons

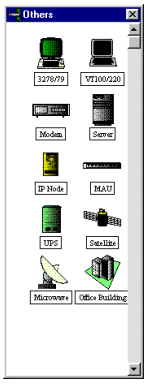
Network Node Icons differ from **Connectivity Icons** in that the former icons do not represent devices: **Network Node Icons** instead represent non-connectivity nodes displayed in the following *screen capture*:



Network Node Icons are used to represent your various supported network nodes.

Other Icons

Other Icons include miscellaneous icon varieties as displayed in the following *screen capture*:



These icons are considered IP nodes but non-SNMP compliant nodes.

Other Icons may be necessary to accurately design your network map. Double-clicking on any of these icons opens the **Attributes Dialog Box** in which you may configure these items; refer to **Chapter 7** entitled **The Mouse Right Button Menu** for more information.

Manipulating Objects on the Map

The following sets of instructions apply to both first and subsequent usage of your network map; refer to the section entitled **Accessing**

Your Network Map in this chapter for instructions on opening the desired network map.

Adding Objects

A variety of methods exist through which you may add **Icon Objects** and **Text/OLE Objects** to your network map:

Using the Edit Menu

1. Highlight the **Edit Menu**.
2. Highlight the **Add** submenu.
3. Highlight the **Icon Group** of your choice.
4. Select the **Icon Object** of your choice.
5. Click to deposit the **Icon Object** onto the network map.
6. Configure the newly added **Icon Object** by highlighting it, activating your **Mouse Right Button Menu** and selecting **Attributes** to open the **Attributes Dialog Box**; refer to **Chapter 7** entitled **The Mouse Right Button Menu** for more information on the **Attributes Dialog Box**.

Using the Icon Group Palette

1. Highlight the **View Menu**.
2. Select the **Icon Group** option of your choice to open the corresponding **Icon Group Palette**.
3. *Drag & Drop* the **Icon Object** of your choice from the **Icon Group Palette** to your network map.
4. Close the **Icon Group Palette**.
5. Configure the newly added **Icon Object** by highlighting it, activating your **Mouse Right Button Menu** and selecting **Attributes** to open the **Attributes Dialog Box**; refer to **Chapter 7** entitled **The Mouse Right Button Menu** for more information on the **Attributes Dialog Box**.

Using Cut/Copy/Paste

This functionality is useful should you wish to add a duplicate **Icon Object** or **Text/Embedded OLE Object** to your network map.

Prior to activating this option, you must first enable it as follows:

- Highlight the **Tools Menu**.
- Select **Options** to open the **Options Dialog Box**.
- Select the **Use smart cut/copy/paste** option in the **Mapping** folder; click on **OK**.

Note: Should you fail to enable this option yet *still* continue with the instructions below, the selected **Icon Object** *only* will be duplicated; its database contents will not be. You must then configure the **Icon Object** using the **Attributes Dialog Box**.

1. Select the **Icon Object** or **Text/Embedded OLE Object** you wish to add.
2. Select **Cut** or **Copy** from the **Toolbar** or **Edit Menu**.
3. Select the map onto which you wish to deposit the **Icon Object** or **Text/Embedded OLE Object**; select **Paste** from the **Toolbar** or **Edit Menu**.

Deleting Objects

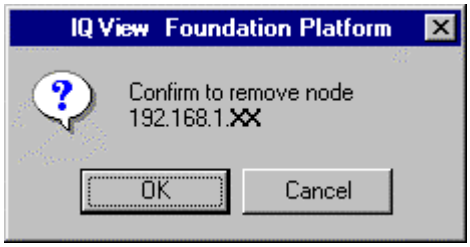
1. Select the object on the map
2. Press on the **Delete** Key.

Notes:

- Deleting **Icon Objects** from your network map may or may not affect the node entry in the database; select or deselect the **Delete database object with icon** option in the **Mapping** folder of the **Options Dialog Box** accessed from the **Options** feature in the **Tools Menu**.

- Minimize errors in deleting **Icon Objects** as follows:

  - Select the **Prompt before remove** option in the **Mapping** folder of the **Options Dialog Box** accessed from the **Options** option in the **Tools Menu**. Selecting this option prompts the following warning message upon any attempt to remove an **Icon Object** from a network map.



  - Click on **OK** or **Cancel** accordingly.

Selecting an Object

A selected Icon is indicated by an **Icon Description** and **Icon Label** enclosed in **red** and a **Status Box** enclosed in **blue**; a selected **Text/Embedded OLE Object** is enclosed in **blue**.

- Select a single **Icon Object** or **Text/Embedded OLE Object** simply by clicking on it.
- Select isolated **Icon Objects** or **Text/Embedded OLE Objects** from among any subnet on your network map by clicking on the first **Icon Object** or **Text/Embedded OLE Object**, holding the **Shift Key** and clicking on subsequent **Icon Objects** or **Text/Embedded OLE Objects**.
- Select **Icon Objects** or **Text/Embedded OLE Objects** within a region by dragging your cursor around the desired **Icon Objects** or **Text/Embedded OLE Objects** while holding the cursor.

Click elsewhere on the network map to deselect an **Icon Object** or **Text/Embedded OLE Object**.

Moving Objects

- Simply *Drag & Drop* your selected **Icon Object** or **Text/Embedded OLE Object** to another area on the same map.

Adding Links between Objects

Logical connections between nodes on your network are represented on your network map by drawn lines between **Icon Objects**. The selected link name will then be displayed within a box or a perforated box between the logically connected **Icon Objects**. The link name is color-coded to better differentiate between logical connectivity types.

Adding Links between Two Icon Objects

1. Select the **Icon Objects** you wish to logically connect.
2. Highlight the **Edit Menu**.
3. Highlight the **Add** submenu.
4. Highlight **Link**.
5. Select the desired link.

Adding Links between Several Icon Objects

1. Follow instructions ***1-5*** in **Adding Links between Two Icon Objects**.

2. Select one of the **Icon Objects** to which you wish to connect.
3. Select the new **Icon Object** to which you wish to connect.
4. Follow instructions ***2-5* Adding Links between Two Icon Objects.**

Creating a Submap

Creating a **Submap** provides the following benefits:

- Device relocation better accommodates network traffic.
- Device grouping according to manufacturer, device type, etc., facilitating device management according to your needs.

Using Copy and Paste

1. Select the **submap** on which you would like to add your **Icon Object**.
2. Highlight the **Edit Menu**.
3. Highlight the **Add** submenu.
4. Highlight the **Icon Object Group** of your choice.
5. Select the desired **Icon Object**.
6. Use your cursor to deposit the **Icon Object** at the desired location on your submap.
7. Double-click on the **Icon Object** to open your submap.
8. Select the desired nodes from among your other submaps that you wish to place into the desired submap.
9. Highlight **Edit** and select **Copy**.
10. Select the submap.
11. Highlight the **Edit Menu** and select **Paste**.
12. Highlight the **Window Menu** and select **Tile** or **Cascade** to better display your new submap.

Using the Edit Menu

1. Follow steps ***1-7*** in **Using Copy and Paste**.
2. Highlight the **Edit Menu**.
3. Highlight the **Add** submenu.
4. Highlight **Connectivity**.
5. Select the desired **Connectivity Node**.
6. Use your cursor to deposit the **Connectivity Node** at the desired location on your segment submap.
7. Highlight the **Window Menu** and select **Tile** or **Cascade** to better display your new submap.

Using the View Menu

1. Follow steps ***1-7*** in **Using the Edit Menu**.
2. Highlight the **View Menu**.

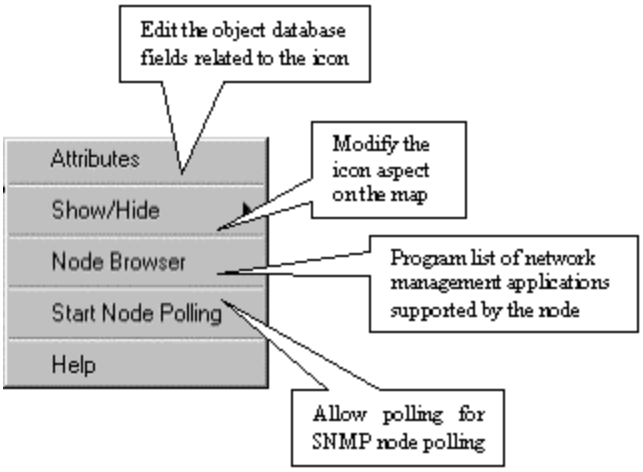
3. Select **Connectivity** to open the **Connectivity Palette**.
4. *Drag & Drop* the desired **Connectivity Node** onto your submap.

Highlight the **Window Menu** and select **Tile** or **Cascade** to better display your new submap.

Chapter 7
The Mouse Right Button Menu

The **Icon Object Mouse Right Button Menu** allows you to perform the following:

- **ICON OBJECT CUSTOMIZATION** (through the **Attributes** & **Show/Hide** options)
- **ICON OBJECT MANIPULATION** (through the **Node Browser**, **Start Node Polling**, **Help** options, …)


Edit the object database fields related to the icon
Attributes
Show/Hide
Node Browser
Start Node Polling
Help
Modify the icon aspect on the map
Program list of network management applications supported by the node
Allow polling for SNMP node polling

Chapter Structure

This chapter is structured according to the following topics:

- **Accessing the Icon Object Mouse Right Button Menu**
- **Icon Object Mouse Right Button Menu Types**
  - **Connectivity Icon Mouse Right Button Menus**
  - **Other Connectivity Icon Mouse Right Button Menus**

- **Icon Object Customization**
  - **Attributes**
  - **Show/Hide**
- **Icon Object Manipulation**
  - **Node Browser**
  - **Start Node Polling**
  - **Help**
- **Setting Database Attributes**
  - **Setting General Information**
  - **Setting Network Information**
  - **Setting Polling Information**
  - **Setting Contact Information**
  - **Setting Location Information**
  - **Obtaining Database Statistics**

Accessing the Icon Object Mouse Right Button Menu

- Right-click on an **Icon Object** to open the following popup menu:

Important: Depending on the icon type, certain entries may/may not appear.

Icon Object Mouse Right Button Menu Types

Two categories of **Icon Object Mouse Right Button Menus** exist:

- **Connectivity Icon Mouse Right Button Menus**
- **Other Connectivity Icon Mouse Right Button Menus**

Connectivity Icon Mouse Right Button Menus

Connectivity Icons represent the managed devices on your network and can display the exact graphical representation of the device itself in the **Icon Object**.

Important: These icons are available to the **IQ View Foundation** only when you install GUI applications specific to the **IQ View Foundation**.

Double-clicking on such an icon activates the GUI; refer to the corresponding GUI manual for more information. For such icons, the first options are GUI-management-applications related to the node. The remaining are optional applications such as the **Graphic Application**, **Threshold Utility**, and others dependant on the node's capability.

Other Connectivity Icon Mouse Right Button Menus

These generic *repeater/router/bridge* icons are considered *non GUI-manageable.* Other **Connectivity Icons** can therefore be controled only by the **Node Browser**. Refer to **Chapter 12** entitled **The MIB Compiler** for more information.

Icon Object Customization

You may customize each **Icon Object** to show/hide the **Icon Description**, **Status Box**, **Icon Object**, and/or **Icon Label** on your network from the following:

- **ICON OBJECT MOUSE RIGHT BUTTON MENU**. Refer to the **Attributes** and **Show/Hide** options for more information.
- **MAP LEVEL ATTRIBUTES DIALOG BOX**; refer to **Chapter 4** entitled **Using the IQ View Foundation** (***View Menu*** subsection).

Attributes

For each map icon object there is a corresponding linked database object; setting the attributes of the object updates this database definition. Refer to the **Setting Database Attributes** section later in this chapter for more information.

Show/Hide

You can alter the aspect (look) of the Icon on the map by setting/removing the selected **Icon Description**, **Icon Object**, **Status Box**, and/or **Icon Label** on your network. A checkmark beside any of these items indicates the item is shown.

Label

The icon label is the symbolic name of the icon. When manually adding an icon on the map, this field is by default not set. It *can* be defined by using **Attributes/General** to set the label. When the node is an **AutoDiscovery** node, it will be set by default to the IP address of the node discovered and can be changed later on.

By selecting the **Show/Hide Label** option, you can choose to display or not display the node graphically on the map.

Description

The **Description** field is defined for nodes and TELCO devices. It allows for a short description of such devices.

Object

You can choose to display or not display the **Icon Object** on the map.

Select this option if you want to display only the object status. This option also considerably speeds-up the drawing of the map itself and can be used if many objects must be displayed on the map.

Status Box

The **Status Box** is defined by the **Alarm** subsystem status and can be hidden. Disabling a node or segment object status prohibits the status from being propagated to higher levels.

Icon Object Manipulation

The following options provide additional functionality to manipulate the **Icon Object**.

Node Browser

Refer to **Chapter 12** entitled **The MIB Compiler** for more information.

Start Node Polling

Select this option to poll the selected node only. Refer to the subsection entitled **Icon Object Layout** in the previous chapter for the **Status Box Color Code Chart**. The color within the **Status Box** will remain until the node status changes or until you select the **Stop Polling** option in the **Mouse Right Button Menu** which became enabled once you began polling. Refer to **Chapter 9** entitled **Polling Your Network** for more information.

Help

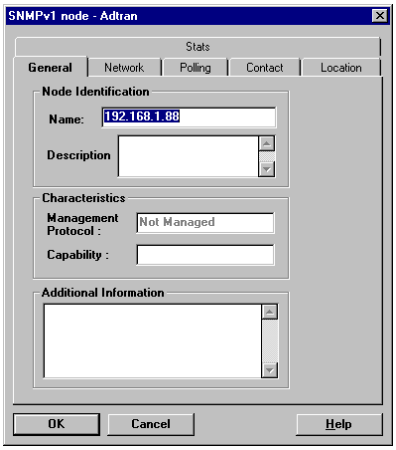
Clicking on the **Help** option from an **IQ View Foundation**-manageable **Connectivity Node Icon** activates context-sensitive help on the node; clicking on the **Help** option from any other **Icon Object** activates context-sensitive help on the **IQ View Foundation**.

Setting Database Attributes

The **Attributes** option allows you to modify the **AutoDiscovery Database** by using the **Attributes Dialog Box** divided into the following seven folders: **General**, **Stats**, **Network**, **Polling**, **Contact**, and **Location**. The number of folders available varies according to the **Icon Object**. Clicking on **OK** in each folder saves the information to the database.

Setting General Information

The **General Information** folder gives a general description of the network node:



The fields defined in this menu are as follows:

NAME: This field represents the symbolic node name. When the node is AutoDiscovered, this field is set to the network address of the node. Setting this field also defines the icon name on the map.

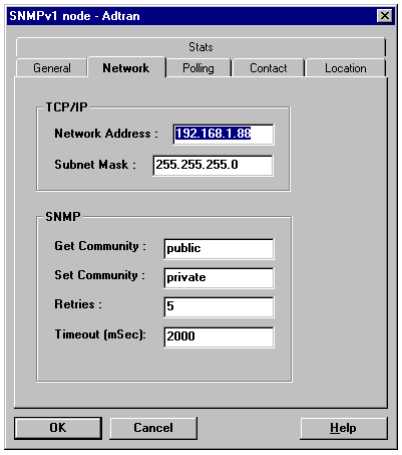
DESCRIPTION: This field contains the description of the node. When the node is AutoDiscovered, this field is set to the MIB-II sysDescription of the device.

MANAGEMENT PROTOCOL: When the node is AutoDiscovered, this field indicates if the node is an SNMP node or just an IP node. Otherwise, this field is disabled.

CAPABILITY: When the node is AutoDiscovered, this field indicates the capability of the device (from the MIB-II sysCapability). Otherwise, this field is disabled.

ADDITIONAL INFORMATION: Any user comment or additional information can be entered in this field.

Setting Network Information



The **Network** folder information defines the information required by SNMP applications to contact and access the SNMP agent in the node.

NETWORK ADDRESS: This address is the IP address of the node. When the node is AutoDiscovered, this address is already set.

SUBNET MASK: This field represents the subnet mask of the node when subnetting is used.

GET COMMUNITY: This field represents the **Community Name** used to send SNMP/Get requests to the device. Applications and the Polling subsystem to set up the requests use this field. If the **Community Name** does not match the *node* **Community Name**, the application will timeout and a trap should be sent to the manager.

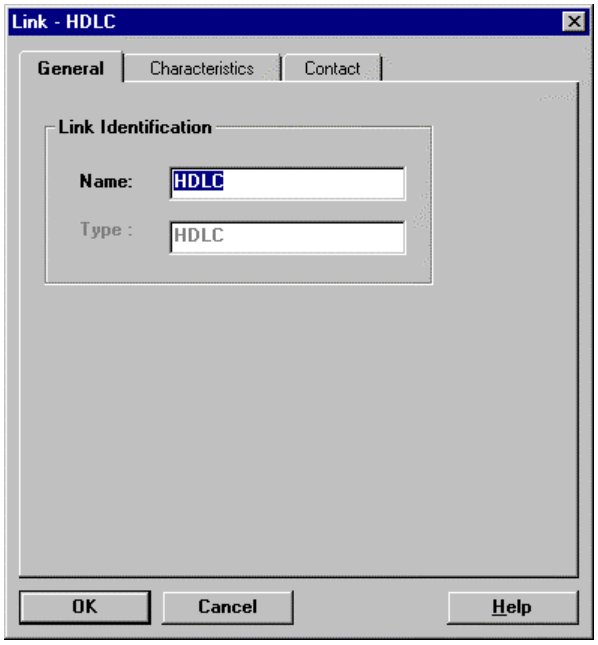
SET COMMUNITY: This field is required to manage (set variables in) the node. It must match the device's **Set Community** name. However, the user must also have **Network Administrator**, **Level 1**, **Level 2**, or **Level 3** operator-privileges to manage the device.

RETRIES: This value determines the number of times **IQ View** must continue sending an SNMP Get or Set request to an uncommunicative network node before the node is declared as being unresponsive or down.

TIMEOUT: Enter a **timeout** interval in this field; the default value is 500. This parameter instructs **IQ View** to discontinue all attempts to communicate with any network node failing to respond to an SNMP request within the time allotted.

Link Mouse Right Button Menu

When creating a link between two object icons on the **Foundation Map**, you may right click on the created **Link** to access the **Link Right Mouse Button Menu**.

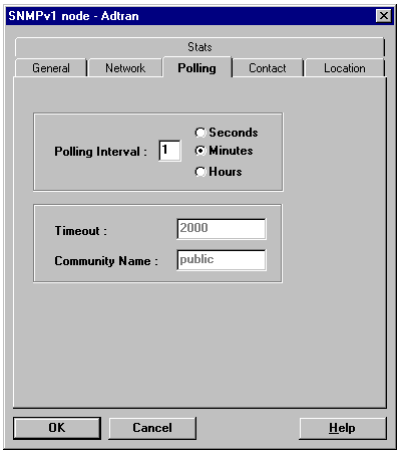


There are three options available: **Attributes**, **Show/Hide** which was described earlier and **Help** which offers context-sensitive help on Links.

Attributes offer three folders to define your created link:

- **General** displays the **Link Identification** – the **Name**, which you may modify and the **Type** of Link created.
- **Characteristics** such as the **Type** of Link that was created, the **Speed** of the Link which is modifiable using the available pick list, the **Monthly Charge** that displays the cost of maintaining that particular Link and the **Line ID Cabling** which defines the type of cabling being used. All of these fields may be modified with the exception of **Type**.
- **Contact** is a modifiable folder which contains the **Name**, **Address** and **Telephone Number** of the person and/or company supplying the Link.

Setting Polling Information



The **Polling** folder defines the information required by the polling subsystem to periodically poll the node.

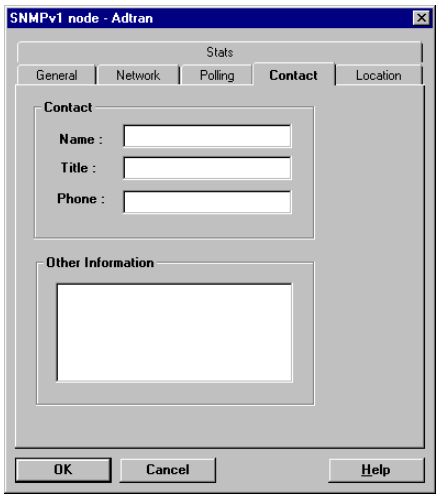
POLLING INTERVAL: The polling interval represents the interval between each polling request.

TIMEOUT: After a timeout delay, the polling subsystem considers the polling request lost and the device *not* responding. A timeout polling event is then generated on the **IQ View Foundation**.

COMMUNITY NAME: This community name is the **Network Community Name** set on the **Network Dialog Box**.

Setting Contact Information

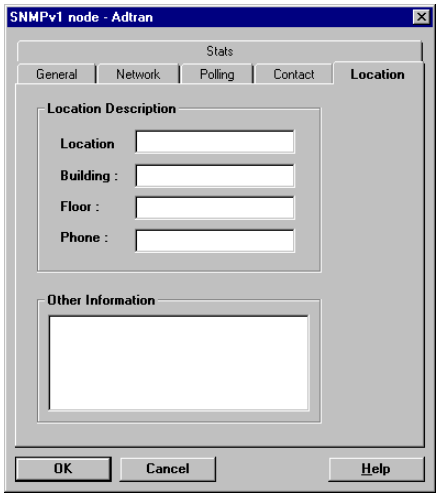
For each node or network you can set its contact or owner information.



When an SNMP node is AutoDiscovered, the **Name** field contains the MIB-II sysName information that was downloaded from the node. You can set and locally change all the fields of this dialog box.

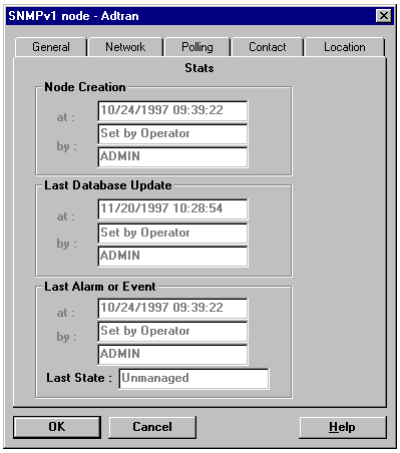
Setting Location Information

When an SNMP node is AutoDiscovered, the **Location** field is set to the MIB-II sysLocation that was downloaded from the node. You can set and locally change all the fields of this dialog box.



Obtaining Database Statistics

The **Stats** folder contains information on the database record:



Each of the following items corresponds to a field in the **Stats** folder:

- Who (or which program) added a node in the database
- When the node was added
- When the last update was done
- When a last alarm or event was set on the node

Chapter 8

Discovering your Network

Creating your **AutoDiscovery Database** and maintaining it with the most current network information is a critical feature of the **IQ View Foundation**. The process that gathers this information from the network to update this database is the **AutoDiscovery** subsystem.

The **AutoDiscovery** subsystem, which runs as a background process, virtually automates the creation and maintenance of network maps. Operating within IP Address ranges and other guidelines that you specify, **AutoDiscovery** explores your network and gathers information pertaining to devices and other network nodes it discovers. This information is then stored in the **AutoDiscovery Database**. By automating the creation and layout of network maps, **AutoDiscovery** can save you significant amounts of time and will discover elements you might otherwise miss if attempting to manually maintain your network topology.

Furthermore, the **AutoDiscovery** subsystem can be customized to auto-discover multiple network levels, or individual segments; or you can setup rules to search and download (refresh) information pertaining to nodes.

Chapter Structure

This chapter is structured according to the following topics and subtopics:

- **The AutoDiscovery Monitor**
  - **Activating the AutoDiscovery Monitor**
  - **Layout of the AutoDiscovery Dialog Box**
  - **Button Bar**
- **Configuring AutoDiscovery**
  - **Preparing for Initial Usage**
  - **Adding Network Segments**
  - **Defining the Method of AutoDiscovery**

- **Setting SNMP Parameters**
- **Starting AutoDiscovery**

- **Customizing the AutoDiscovery Scheduler**

- **Managing the AutoDiscovery Database**

  - **Updating the AutoDiscovery Database**
  - **Clearing the AutoDiscovery Database**

The AutoDiscovery Monitor

The **AutoDiscovery Monitor** controls the **IQ View Foundation s AutoDiscovery** subsystem. It allows you to define a list of network segments you wish to auto-discover, as well as the specific times at which you would like the **AutoDiscovery Monitor** to begin the **AutoDiscovery** process.

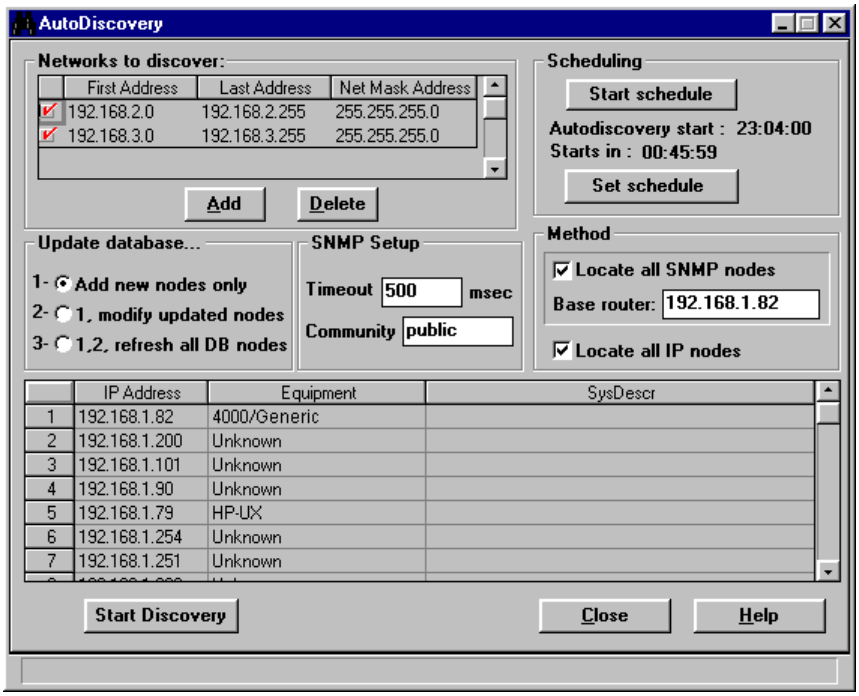
Activating the AutoDiscovery Monitor

To activate the **AutoDiscovery Monitor**, do the following:

- Select the **AutoDiscovery Monitor** option from the **Network Menu**

OR

- Click on the **AutoDiscovery Monitor Button** ( ) on the **Toolbar**



Layout of the AutoDiscovery Dialog Box

The **AutoDiscovery Dialog Box** is the central point for configuring and observing the **AutoDiscovery** process. It is divided according to the following sections:

Networks to Discover

The **Networks to discover** section allows you to select the specific network segments that you wish to auto-discover. You can define IP address ranges to search within a particular network segment.

Use the **Add** or **Delete Buttons** to either add a new network to the **Networks to discover** pick list, or remove an existing one. Refer to **Adding Network Segments** in the **Configuring AutoDiscovery** section later in this chapter for information on the usage of this function.

Scheduling

The **Scheduling** section allows you to set a schedule for the **AutoDiscovery** process. Refer to **Customizing the AutoDiscovery Scheduler** later in this chapter for information on this function.

Update Database

The **Update database** section allows you to manage the **AutoDiscovery Database**, which contains information pertaining to network nodes discovered during the **AutoDiscovery** process. Refer to **Managing the AutoDiscovery Database** later in this chapter for information on this function.

SNMP Setup

The **SNMP Setup** section allows you to configure SNMP parameters. Refer to **Setting SNMP Parameters** in the **Configuring AutoDiscovery** section later in this chapter for information this function.

Method

The **Method** section allows you to determine the procedure you wish the **AutoDiscovery** subsystem to use when discovering your network. Refer to the section **Defining a Method of AutoDiscovery** in **Configuring AutoDiscovery** later in this chapter for information on this function.

Discovered Nodes Data Table

The **Discovered Nodes Data Table** lists nodes found or updated during the last **AutoDiscovery** cycle. Refer to **Starting AutoDiscovery** in the **Configuring AutoDiscovery** section later in this chapter for information on this function.

Button Bar

The **Button Bar** of the **AutoDiscovery Dialog Box** is used to perform the functionality of the **AutoDiscovery Monitor**; it includes the following buttons:

Start Discovery

Click on **Start Discovery** to initiate the **AutoDiscovery** process. The **Start Discovery Button** is replaced with **Stop Discovery** during **AutoDiscovery**; the **Stop Discovery Button** can be used to abort **AutoDiscovery** at any time.

Refer to **Starting AutoDiscovery** in the **Configuring AutoDiscovery** section later in this chapter for information on this function.

Close

Click on **close** to terminate the **AutoDiscovery Monitor**.

Notes:

- During **AutoDiscovery**, clicking on **Close** does not terminate the **AutoDiscovery Monitor**. This function closes the **AutoDiscovery Dialog Box** without interrupting the **AutoDiscovery** automated process. Refer to **Starting AutoDiscovery** in the **Configuring AutoDiscovery** section later in this chapter for information on this function.
- Closing the **AutoDiscovery Monitor** has no effect on the **AutoDiscovery Scheduler**; the **AutoDiscovery Scheduler**, when started, continues running as long as the **IQ View Foundation** remains active. Refer to **Customizing the AutoDiscovery Scheduler** later in this chapter for information on this function.

Help

Click on **Help** to obtain context-sensitive help on the **AutoDiscovery Dialog Box**. For further information on the usage of the **AutoDiscovery Dialog Box** and/or initiating **AutoDiscovery**, refer to **Configuring AutoDiscovery** later in this chapter.

Configuring AutoDiscovery

Configuring **AutoDiscovery** involves the following:

I. Preparing for Initial Usage

II. Adding Network Segments

III. Defining the Method of AutoDiscovery

IV. Setting SNMP Parameters

V. Starting AutoDiscovery

For initial usage of **AutoDiscovery**, it is recommended that you follow each of the subdivisions mentioned above sequentially.

Preparing for Initial Usage

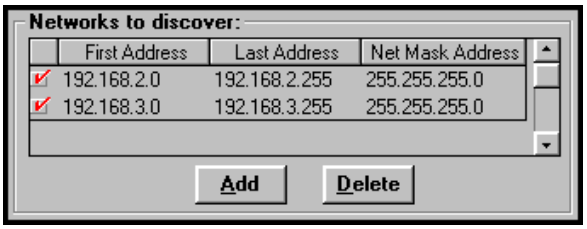
Prior to configuring **AutoDiscovery** and launching an **AutoDiscovery** session for the first time, you need to obtain the following information about your network:

- Your IP subnet mask
- The IP networks you wish to have discovered
- The IP Address of the default gateway or router if one exists on your network

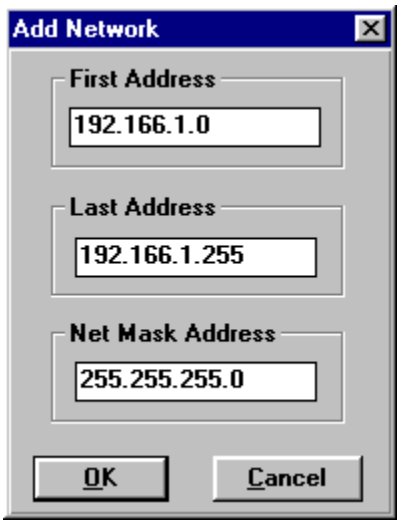
Once you obtain this information you may begin configuring **AutoDiscovery**.

Adding Network Segments

Prior to configuring any other option in the **AutoDiscovery Dialog Box**, you must first add to the **Networks to discover** pick list those network segments you wish to auto-discover:



1. Click on the **Add Button** in the **Networks to discover** section of the **AutoDiscovery Dialog Box**; this activates the **Add Network Dialog Box**:



2. Enter the first and last **IP Addresses** of a network segment that you wish to auto-discover in the **First Address** and **Last Address** fields respectively.

Note: You are not required to provide the last **IP Address** of your network segment; the **AutoDiscovery Monitor** calculates the last **IP Address** based on the value specified in the **First Address** field.

3. Enter the **IP subnet mask** of your network in the **Net Mask Address** field.
4. Click on **OK** to save the new entry and close the **Add Network Dialog Box**.

The network segment is now displayed in the **Networks to discover** pick list. To add additional network segments, simply repeat the previous steps.

Notes:

- A check mark to the left of a network segment in the **Networks to discover** pick list indicates the segment will be discovered when **AutoDiscovery** is next started. Select this option if you want to disable a particular network without removing the entry.

- You must have at least one network segment selected (visible check mark) in the **Networks to discover** pick list in order to start **AutoDiscovery**.

- You can permanently remove an unwanted network segment from the **Networks to discover Data Table**; simply select the undesired network segment by clicking on its corresponding cell in the pick list and then click on the **Delete Button**.

Defining the Method of AutoDiscovery

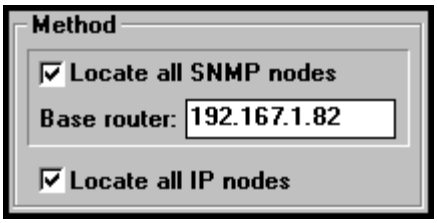
The **AutoDiscovery Monitor** allows you to choose from three methods of **AutoDiscovery**:

1. Discover and identify ***only*** SNMP-compliant nodes using the "next hop" and ARP table algorithm.

2. Discover and identify ***both*** SNMP ***and*** non SNMP-compliant nodes by testing each possible address on the specified network segments.

3. Discover and identify all IP nodes using both methods **1** and **2**.

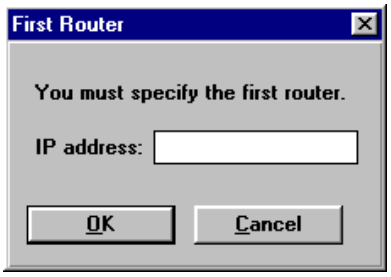
The method of **AutoDiscovery** is defined using the **Method** section of the **AutoDiscovery Dialog Box**:



The **Method** section of the **AutoDiscovery Dialog Box** includes the following two options:

Locate all SNMP nodes

Selecting this option prompts the **AutoDiscovery Monitor** to scan the “next hop” and ARP table of the specified gateway or router in order to discover and identify ***only*** SNMP-compliant IP nodes on your network. The **AutoDiscovery Monitor** continues the **AutoDiscovery** process until it has searched all specified segments of the network. To activate this option, click on its corresponding radio button (a check mark indicates the option is currently active); this opens the **First Router Dialog Box** where you must enter the **IP Address** of your default gateway or router:



- Enter the **IP Address** of your default gateway or router and click on the **OK Button** to accept your entry and close this dialog box.

Once you enter the **IP Address** of your default gateway or router in the **First Router Dialog Box**, it is displayed in the **Base router:** field located below the **Locate all SNMP nodes** option. If you wish to change the **IP Address** of your default gateway or router at a later time, you need only modify the contents of the **Base router:** field.

Notes:

- You cannot modify the **Base router:** field until the **Locate all SNMP nodes** option is activated.
- Erasing the contents of the **Base router:** field causes the **First Router Dialog Box** to be displayed when you next reactivate the **Locate all SNMP nodes** option.

Locate all IP Nodes

Selecting this option prompts the **AutoDiscovery Monitor** to discover and identify ***both*** SNMP ***and*** non SNMP-compliant nodes (IP nodes only) on your network. The **AutoDiscovery Monitor** continues the **AutoDiscovery** process until it has searched all specified segments of the network. To activate this option, simply click on its radio button (a check mark indicates the option is currently active).

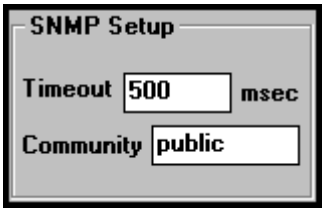
The following table describes the steps involved in activating each of the three methods of **AutoDiscovery** discussed earlier:

Method	Steps	Result
1. Discover and identify ***only*** SNMP-compliant nodes using the "next hop" and ARP table of your default gateway or router	• Select the **Locate all SNMP nodes** option • Enter the **IP Address** of your default gateway or router in the **First Router Dialog Box** • Start **AutoDiscovery**	Information pertaining only to SNMP-compliant nodes is displayed and subsequently stored in the **AutoDiscovery Database**; non SNMP-compliant IP nodes are ignored.
2. Discover and identify ***both*** SNMP ***and*** non SNMP-compliant nodes	• Select the **Locate all nodes** option • Start AutoDiscovery	Information pertaining to ***both*** SNMP ***and*** non SNMP-compliant nodes is stored in the **AutoDiscovery Database**. This method of AutoDiscovery takes much longer to

Method	Steps	Result
		complete and uses substantially more network resources than obtaining valid **IP Addresses** from the default router.
3. Discover and identify ***all*** IP nodes using both methods 1 and 2	• Select the **Locate all SNMP nodes** option • Enter the **IP Address** of your default gateway or router in the **First Router Dialog Box** • Select the **Locate all nodes** option • Start **AutoDiscovery**	Information pertaining to all discovered IP nodes is stored in the **AutoDiscovery Database**. IP node discovery is made using the "next hop" and ARP Table in the default gateway or router.

Setting SNMP Parameters

In order for the **AutoDiscovery Monitor** to communicate with SNMP-compliant nodes on your network, and thus successfully discover and identify such nodes, you must configure the following SNMP parameters in the **SNMP Setup** section of **the AutoDiscovery Dialog Box**:



Timeout

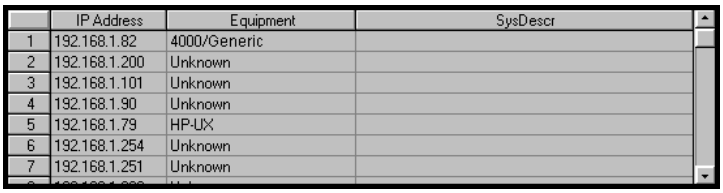
Enter a **timeout** interval in this field; the default value is 500. This parameter instructs the **AutoDiscovery Monitor** to discontinue all attempts to communicate with any network node failing to respond to an SNMP request within the time allotted.

Community

This parameter refers to the **Get Community** name belonging to all nodes on your network. By default, the **AutoDiscovery Monitor** uses **Public**. In order to be discovered, all SNMP-compliant devices on your network must share a common **GET** community name.

Starting AutoDiscovery

Once you have completed configuring **AutoDiscovery**, you may start the **AutoDiscovery** process by clicking on the **Start discovery Button** of the **AutoDiscovery Dialog Box**. The **AutoDiscovery Monitor** begins searching for nodes on specified network segments. The **Discovered Nodes Data Table** displays information on nodes as they are discovered.



	IP Address	Equipment	SysDescr
1	192.168.1.82	4000/Generic	
2	192.168.1.200	Unknown	
3	192.168.1.101	Unknown	
4	192.168.1.90	Unknown	
5	192.168.1.79	HP-UX	
6	192.168.1.254	Unknown	
7	192.168.1.251	Unknown	

The **Discovered Nodes Data Table** displays the **IP Address**, **Device** type (device name), and **System Description MIB Object** value of each discovered SNMP and non SNMP-compliant node. If the **AutoDiscovery Monitor** cannot identify a particular node, the list displays the **Device** type (device name) of the node as (1) **Unknown**, for a non SNMP-compliant (or IP node only); or (2) **Unknown SNMP**, for an SNMP-compliant IP node. When **AutoDiscovery** is completed, all discovered nodes displayed in the **Discovered Nodes Data Table** are saved to the **AutoDiscovery Database**.

Notes:

- The **Start discovery Button** is replaced with **Stop discovery** during **AutoDiscovery**; this button can be used to abort **AutoDiscovery** at any time.

- All options in the **AutoDiscovery Dialog Box**, with the exception of **Stop Discovery**, **Close**, and **Help**, appear grayed-in (inactive) and cannot be used during the **AutoDiscovery** process.

- You can close the **AutoDiscovery Dialog Box** without interrupting **AutoDiscovery** by clicking on the **Close Button**. This displays the **AutoDiscovery Monitor** icon in the **Taskbar Box** located on the far-right corner of the *Windows* **Taskbar**:

⇒ Double-click on the **AutoDiscovery Monitor** icon to re-display the **AutoDiscovery Dialog Box**.

The **AutoDiscovery** search time can vary considerably depending on the size of your network, the selected method of **AutoDiscovery**, and the **timeout** value for an **AutoDiscovery** request. The **AutoDiscovery Monitor** will inform you when **AutoDiscovery** is completed.

Hints

- For subsequent usage of **AutoDiscovery**, it is recommended that you use the **AutoDiscovery Scheduler** to automatically run **AutoDiscovery** at off-peak hours (over-night), or when network usage is low; this is particularly useful in middle range and large networks.

- Do not use **AutoDiscovery** if you only wish to auto-discover a single node on your network; this will needlessly generate network traffic. Use the **Add** option of the **Edit Menu** instead to manually add the node to your network map. Refer to **Chapter 6** entitled **Building Maps** for more information.

Once **AutoDiscovery** has ended, you can request the **IQ View Foundation** to automatically generate a map of your network according to the contents of the **AutoDiscovery Database**. Refer to **Chapter 6** entitled **Building Maps** for more information.

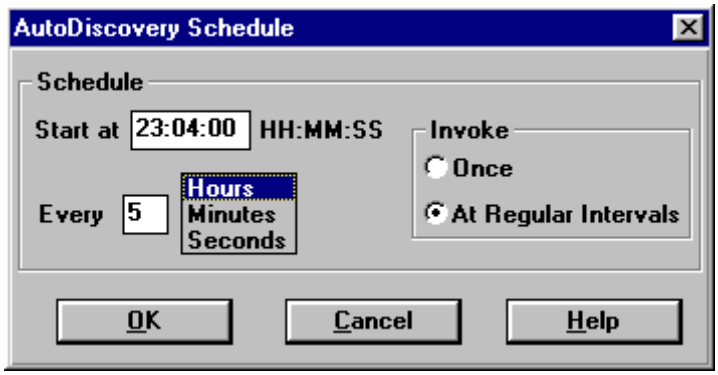
Customizing the AutoDiscovery Scheduler

The **AutoDiscovery Monitor** allows you to set a specific schedule for **AutoDiscovery**. You can customize the **AutoDiscovery**

Scheduler to start **AutoDiscovery** (1) at a specific time during the day or night; or (2) at regular intervals beginning at a time you specify.

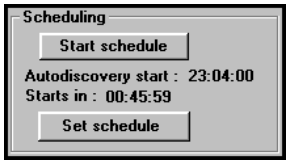
Customize the **AutoDiscovery Scheduler** as follows:

1. Activate the **AutoDiscovery Monitor** if it is not already active (see **Activating the AutoDiscovery Monitor** earlier in this chapter).
2. When the **AutoDiscovery Dialog Box** is displayed, click on the **Set schedule Button** of the **Scheduling** section to activate the **AutoDiscovery Schedule Dialog Box**:



3. In the **Start at** field of this dialog box, enter the exact time (*on a 24-hour clock*) when you would like **AutoDiscovery** to begin.
4. If you want **AutoDiscovery** to run only once at the specified time, select the **Once** option in the **Invoke** section.
5. If, however, you wish for **AutoDiscovery** to run at regular intervals beginning at the specified time, select the **At regular intervals** option in the **Invoke** section. This activates the **Every** option of the **AutoDiscovery Schedule Dialog Box**, which otherwise appears grayed-in (inactive):

6. Enter the desired interval in the **Every** field and select either ***Hours***, ***Minutes***, or ***Seconds***.
7. When you have completed customizing your **AutoDiscovery** schedule, click on **OK** to save your changes and close the **AutoDiscovery Schedule Dialog Box**.



8. Click on the **Start schedule Button** in the **Schedule** section of the **AutoDiscovery Dialog Box** in order to start the **AutoDiscovery Scheduler**. This activates the **AutoDiscovery start:** field which displays the time when **AutoDiscovery** is next scheduled to start, and the **Starts in:** counter displaying the time remaining before the next **AutoDiscovery**.

Notes:

- The **Start schedule Button** is replaced with **Stop schedule** when the **AutoDiscovery Scheduler** is started; this button can be used to terminate the **AutoDiscovery Scheduler**.
- **AutoDiscovery** begins at the scheduled time using the current settings in the **AutoDiscovery Dialog Box**; if you wish to auto-discover your network using different settings, you must configure **AutoDiscovery** prior to starting the **AutoDiscovery Scheduler**.
- If you select the **Once** option in the **Invoke** section of the **AutoDiscovery Schedule Dialog Box**, the **AutoDiscovery Scheduler** automatically switches off when **AutoDiscovery** starts.

Hint

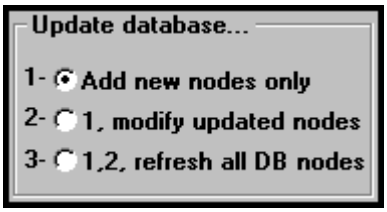
In order to prevent network congestion, schedule **AutoDiscovery** to run at off-peak hours (over-night), or when network usage is minimal.

Managing the AutoDiscovery Database

The **AutoDiscovery Database** contains information pertaining to discovered nodes on your network. The **AutoDiscovery Monitor** allows you manage the **Database** by (**1**) giving you the flexibility to determine how you wish to have the database updated following an **AutoDiscovery**; and (**2**) allowing you to clear the contents of the database whenever you wish.

Updating the AutoDiscovery Database

During the initial **AutoDiscovery** of your network, the **AutoDiscovery Monitor** stores specific information on discovered nodes in the object **AutoDiscovery Database**. For subsequent usage of **AutoDiscovery**, you can determine how you wish to have the **AutoDiscovery Database** updated. This is defined in the **Update database** section of the **AutoDiscovery Dialog Box**:



- Select option ***1*** (**Add new nodes only**) if you wish to add only newly discovered nodes.
- Select option **2** (**1, modify updated nodes**) if you wish to do the following:

    1. Add newly discovered nodes to the **AutoDiscovery Database** following an **AutoDiscovery**
    2. Update nodes which have been modified since **AutoDiscovery** was last invoked

- Select option ***3*** (**1, 2, refresh all DB nodes**) if you wish to do the following:

  1. Add newly discovered nodes to the **AutoDiscovery Database** following an **AutoDiscovery**

  2. Update nodes which have been modified since **AutoDiscovery** was last invoked

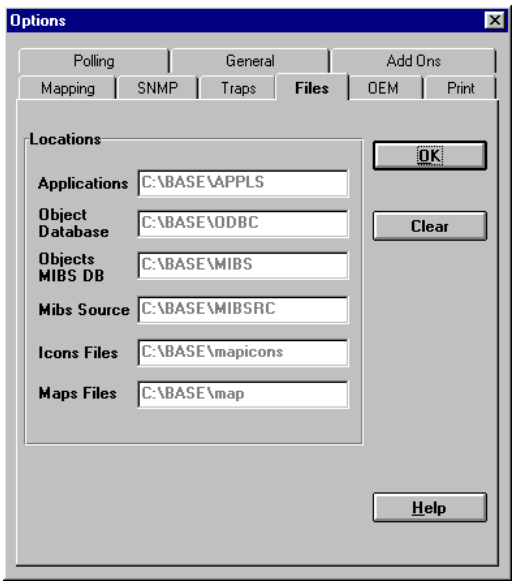
  3. Refresh contents of the **AutoDiscovery Database** for all nodes

Clearing the AutoDiscovery Database

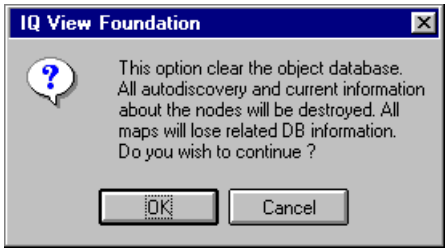
Important: Clearing the **AutoDiscovery Database** is not recommended. You may lose vital information pertaining to nodes on your network.

To clear the **AutoDiscovery Database**, follow the steps:

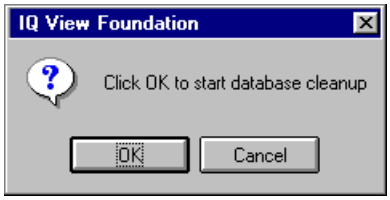
1. Select **Options** from the **Tools Menu**. This activates the **Options Dialog Box**:



2. Select the **Files Folder** and click on the **Clear Button**; you will be prompted with the following message:


IQ View Foundation
This option clear the object database. All autodiscovery and current information about the nodes will be destroyed. All maps will lose related DB information. Do you wish to continue ?
OK
Cancel

3. Click on **OK** if you wish to continue; you will again be prompted to confirm the action:



4. Click on **OK**.

The **IQ View Foundation** begins purging the **AutoDiscovery Database**. You will be notified once the process is completed.

Notes:

- Once the **AutoDiscovery Database** is cleared you will no longer be able to communicate with any devices on your network; you will need to **AutoDiscover** your network and recreate your network map. Any information that you provide for a particular node will be lost when the **AutoDiscovery Database** is cleared.

- Clearing the **AutoDiscovery Database** does not clear the contents of the **Discovered Nodes Data Table** in the **AutoDiscovery Dialog Box**; you must first exit the **IQ View Foundation** and then restart the application.

- The **IQ View Foundation** does not allow you to clear the database while **AutoDiscovery** is running.

Chapter 9
Polling your Network

A **poll** is an SNMP request sent to a device to query for a connectivity response. If the device responds, it is considered connected to the network; if no response occurs the station is considered not connected to the network. In the latter case the **IQ View Foundation** creates an event (an **Alarm Trap**) to notify the **Alarm** subsystem; refer to **Chapter 10** entitled **Managing Events and Alarms** for more information.

Failure to respond can indicate:

- A power down
- A potential failure of the device
- A software failure
- A broken physical link or path in a WAN network between the device and network manager.

Chapter Structure

This chapter is structured according to the following topics and subtopics:

- **Configuring Polling Groups**
  - **Configuring the Default Polling Group**
  - **Configuring Additional Polling Groups**
- **Polling Your Network Nodes**
  - **Start Group Polling**
  - **Stop Group Polling**
  - **Stop All Polling**
- **Single Node Polling**

Configuring Polling Groups

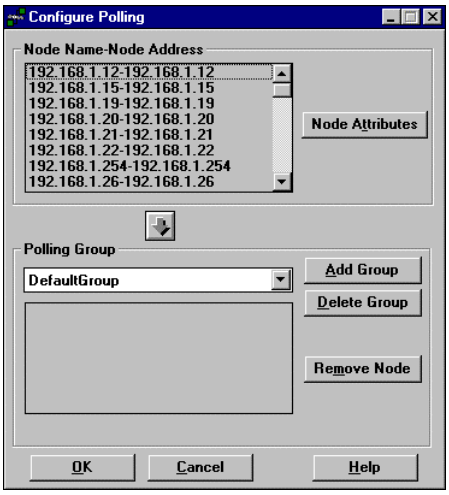
You must configure your polling groups prior to initially polling your network nodes. Typically, polling groups are based on a list of critical nodes that must be checked periodically. Polling only these critical nodes eliminates unnecessary network traffic caused by otherwise polling the entire network.

Configuring the Default Polling Group

The default polling group is empty when the **IQ View Foundation** is installed; the following instructions customize your default polling group according to your needs.

1. Highlight the **Network Menu**.
2. Select the **Configure polling** option to open the **Configuring Polling Groups Dialog Box** containing the following two lists:

    I. **Node Name - Node Address** contains a list of all nodes in the AutoDiscovery Database.

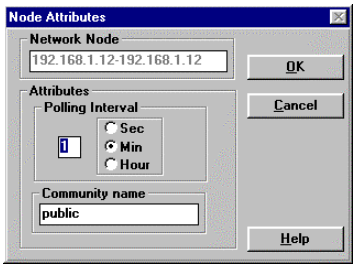


II. **Polling Group** lists an empty *Default Group* to which you must add your desired nodes.

3. Select the desired nodes in the **Node Name - Node Address** list and click on the ⇓ button.

   - Display the IP address, polling interval and community name of a particular node as follows:

     (a) Select the desired node in the **Node Name - Node Address** list.
     (b) Select **Node Attributes** to open the **Node Attributes Dialog Box**:



Note: Only **Network Node** is Read-Only; you may modify all other information. Click on **OK**, **Cancel** or **Help** accordingly.

   - Remove nodes from a group by highlighting the node in the **Polling Group** list and clicking **Remove Node**.

4. Click **OK** to set your configuration and close the **Configuring Polling Groups Dialog Box**.

Configuring Additional Polling Groups

Once you have defined a default group, you may later return to create additional groups to poll specific devices. Each polling group can be modified, deleted and polled as required.

1. Refer to steps ***1*** and ***2*** from the section on **Configuring the Default Polling Group**.
2. Click **Add Group** to open the **Add Polling Group Dialog Box**. Type the name of the new group and click on **OK**.

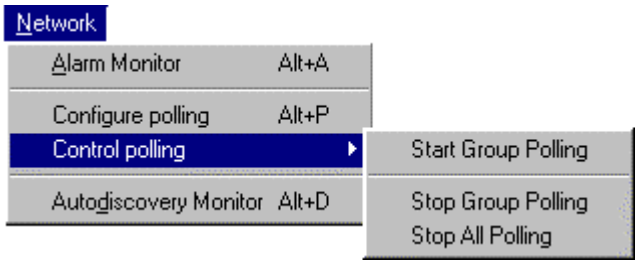
3. Refer to step ***3*** from the section on **Configuring the Default Polling Group**.

   - Delete polling groups by highlighting either the group name in the Pick List or any node in the **Polling Groups Box** and selecting **Delete**. After confirming your desire to delete, the Default Group will be displayed in the Pick List.

4. Click on **OK** to set your configuration and close the **Configuring Polling Groups Dialog Box**.

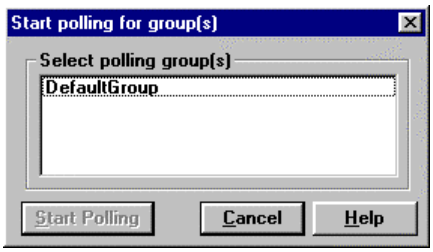
Polling Your Network Nodes

Once your polling groups have been configured, you may begin to poll them for connectivity responses. **Network Polling** can be both started and stopped at any time from the **Control Polling** submenu found under the **Network Menu**.



Start Group Polling

1. Highlight the **Network Menu**.
2. Highlight the **Control polling** submenu.
3. Select **Start Group Polling** to open the **Start polling for group(s) Dialog Box**:



4. Click on the group you wish to poll.
5. Click on the **Start Polling Button** to start Network Polling for that group.
6. Repeat Steps ***1*** to ***3*** to poll other groups simultaneously.

Results of Network Polling

The color within each node status box will reflect the node status: green indicates the node has responded; red indicates there is an error; refer to the **Status Box Color Code Chart** in **Chapter 6** entitled **Building Maps**. Colors remain in the status box until the status of the node changes or until **Network Polling** is stopped.

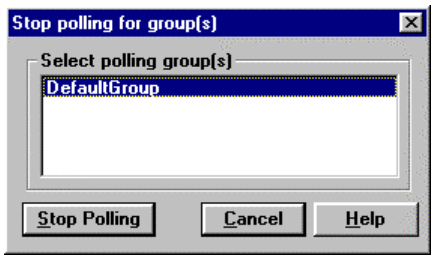
Notes:

- Remember that if you are polling an object that does not appear on the map, the current node status cannot be reflected.
- If your network map does not display any highlighted **Icon Object** status boxes, check the **Configuring Polling Groups Dialog Box** to make sure your selected polling group does in fact contain nodes.

Errors, such as non-response found during polling, will be shown in the **Alarm Monitor**. Refer to **Chapter 10** entitled **Managing Events and Alarms** to set your parameters for ***Network Polling*** errors.

Stop Group Polling

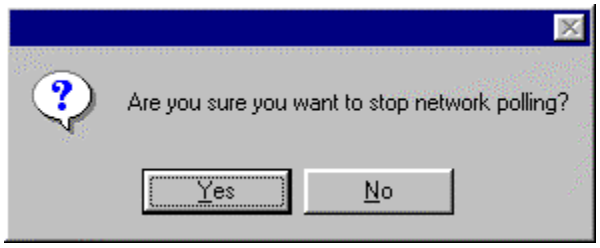
1. Highlight the **Network Menu**.
2. Highlight the **Control polling** submenu.
3. Select **Stop Group Polling** to open the **Stop polling for group(s) Dialog Box**.
4. The **Stop polling for group(s) Dialog Box** highlights all groups that are being polled at that time. Deselect groups that you do not wish to stop polling.



5. Click on the **Stop Polling Button** to terminate the polling session.

Stop All Polling

1. Highlight the **Network Menu**.
2. Highlight the **Control polling** submenu.
3. Select **Stop All Polling**; the following warning message is prompted:



4. Select **Yes** or **No** accordingly.

Single Node Polling

If you have just installed a new node on the Network and immediately want to check for connectivity, use the **Start Node Polling** option on the **Right Mouse Button Menu**.

Start Node Polling allows you to poll one node only for a single interval and cannot be started twice on the same node; you must first **Stop Node Polling**.

Chapter 10
Managing Events and Alarms

Network devices, such as repeaters, routers, bridges, and a variety of other SNMP-compliant IP nodes, are designed to generate specific types of messages indicating any change in their status. These messages are referred to as **SNMP Traps**.

The **IQ View Foundation s Alarm** subsystem records these traps and responds to them accordingly. It is composed of a front-end processor and a monitor called the **Alarm Monitor**. The **Alarm** subsystem is designed to take a specific action for each trap that it receives (**Trap Rules**). You can change the **Alarm** subsystem's default response to a particular trap. You can (**1**) play a sound; (**2**) change the color of the icon on the network map for the device sending the trap; (**3**) launch an external program; or (**4**) enter the trap in either the **Current** or **Archive Database**. You can also change the default response to ignore traps from specific devices.

The **Alarm** subsystem supports two types of traps:

- SNMP Traps
- Internal Events

Important: The term **Trap(s)** is used throughout this manual to describe all **SNMP Alarms**: both external traps and internal event alarms.

SNMP Traps

SNMP Traps are unsolicited messages about the change of state of a particular device, such as:

- Power on/Power off
- Link up/Link down
- Port up/Port down
- Overrun/Underrun

Internal Events

The **IQ View Foundation** itself acts as an SNMP agent. Internal events are sent as a trap PDU and processed by the **Alarm** subsystem. Subsystems, such as **Polling**, generate events in order to provide specific information on the current state of a particular node (responding/not responding).

Chapter Structure

This chapter is structured according to the following topics:

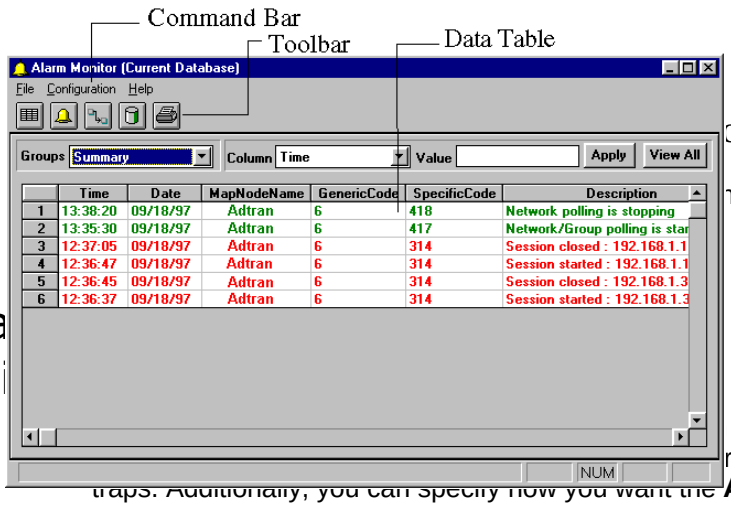
- **Trap Processing**
  - **Enabling Trap Processing**
- **The Alarm Monitor**
  - **Activating the Alarm Monitor**
  - **The Command Bar**
  - **The Toolbar**
  - **The Alarm Monitor Data Table**
- **Configuring The Alarm Monitor**
  - **Groups**
  - **Trap Rules**
- **Database Maintenance**

Trap Processing

Important: Trap Processing is a two-step procedure in which you must ensure that **Trap Processing** is enabled before accessing the **Alarm Monitor**. When the **IQ View Foundation** is installed, the **Enable trap processing** option is selected by default. It should always be set to active.

Enabling Trap Processing

To enable the **IQ View Foundation s Trap Processing** function, follow the steps:


Command Bar
Toolbar
Data Table
Alarm Monitor (Current Database)
File Configuration Help
Groups Summary
Column Time
Value
Apply
View All
Time Date MapNodeName GenericCode SpecificCode Description
1 13:38:20 09/18/97 Adtran 6 418 Network polling is stopping
2 13:35:30 09/18/97 Adtran 6 417 Network/Group polling is star
3 12:37:05 09/18/97 Adtran 6 314 Session closed : 192.168.1.1
4 12:36:47 09/18/97 Adtran 6 314 Session started : 192.168.1.1
5 12:36:45 09/18/97 Adtran 6 314 Session closed : 192.168.1.3
6 12:36:37 09/18/97 Adtran 6 314 Session started : 192.168.1.3
NUM

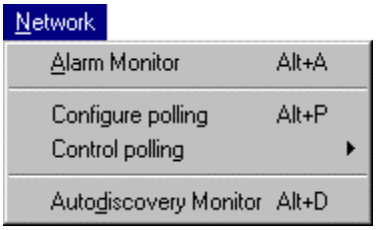
OK.

ncoming traps

The Ala
Moni

s Alarm
rint incoming
traps. Additionally, you can specify how you want the **Alarm Monitor** to respond (**Trap Rules**) to a particular trap once it is received.

Activating the Alarm Monitor



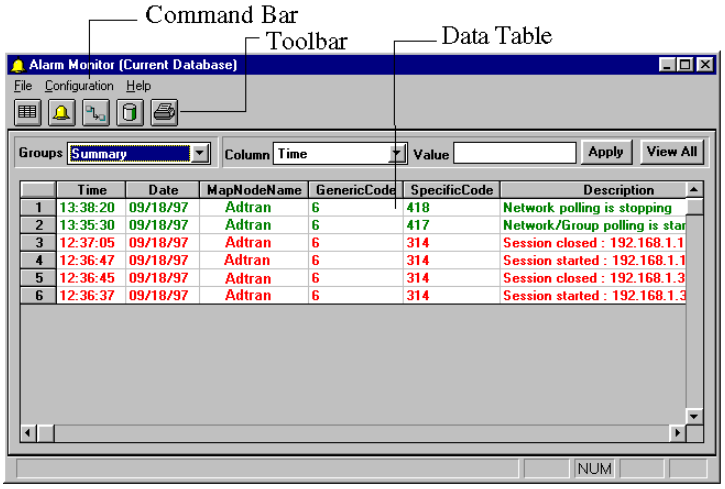
To activate the **Alarm Monitor**, follow the steps below:

- Select the **Alarm Monitor** option from the **Network Menu**:

OR

- Click on the **Alarm Monitor Button** ( ) in the **Toolbar**.

This opens the **Alarm Monitor Dialog Box**:


Command Bar
Toolbar
Data Table
Alarm Monitor (Current Database)
File Configuration Help
Groups Summary
Column Time
Value
Apply
View All
Time Date MapNodeName GenericCode SpecificCode Description
1 13:38:20 09/18/97 Adtran 6 418 Network polling is stopping
2 13:35:30 09/18/97 Adtran 6 417 Network/Group polling is star
3 12:37:05 09/18/97 Adtran 6 314 Session closed : 192.168.1.1
4 12:36:47 09/18/97 Adtran 6 314 Session started : 192.168.1.1
5 12:36:45 09/18/97 Adtran 6 314 Session closed : 192.168.1.3
6 12:36:37 09/18/97 Adtran 6 314 Session started : 192.168.1.3
NUM

The **Alarm Monitor Dialog Box** is the central point for viewing, configuring, acknowledging, and printing traps. It is divided according to the following sections:

- The **Command Bar**
- The **Toolbar**
- A middle section allowing you to customize the display of the **Alarm Monitor Data Table**.
- The **Alarm Monitor Data Table**

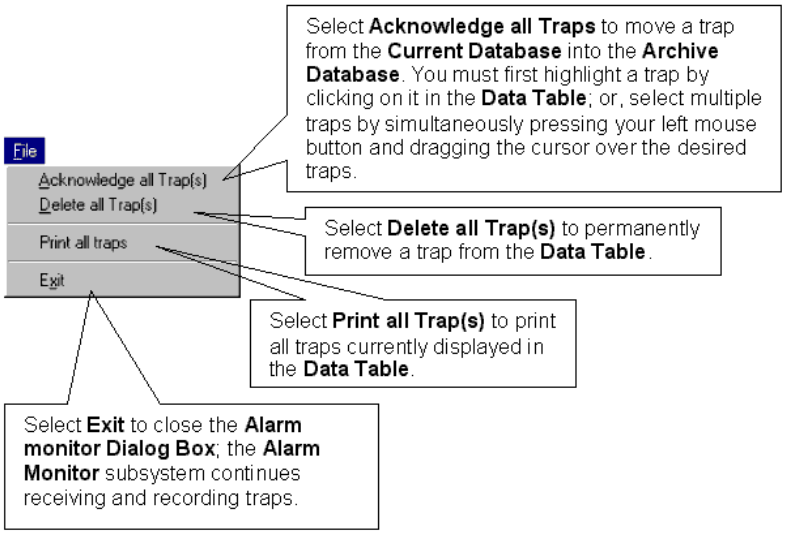
Adjust the size of the **Alarm Monitor Dialog Box** by clicking and dragging on the borders of the box.

The Command Bar

The Command Bar in the **Alarm Monitor Dialog Box** contains the following three menus:

File Menu

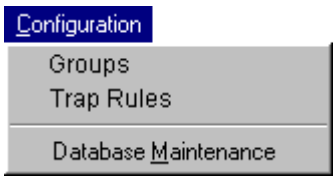
Use the **File Menu** to manipulate Traps in the **Data Table**.


File
Acknowledge all Trap(s)
Delete all Trap(s)
Print all traps
Exit
Select **Acknowledge all Traps** to move a trap from the **Current Database** into the **Archive Database**. You must first highlight a trap by clicking on it in the **Data Table**; or, select multiple traps by simultaneously pressing your left mouse button and dragging the cursor over the desired traps.
Select **Delete all Trap(s)** to permanently remove a trap from the **Data Table**.
Select **Print all Trap(s)** to print all traps currently displayed in the **Data Table**.
Select **Exit** to close the **Alarm monitor Dialog Box**; the **Alarm Monitor** subsystem continues receiving and recording traps.

Note: The **Acknowledge all Traps** option has no effect if the **Database** currently being viewed is the **Archive Database**.

Configuration Menu

Select this option to configure parameters for **Groups**, **Trap Rules** and **Database Maintenance**. Click an option to open the related dialog box (for more information refer to **Configuring the Alarm Monitor** later in this chapter).



Help Menu

Select the **Help** option in the **Help Menu** to activate context-sensitive help on the **Alarm Monitor**.

The Toolbar

The **Toolbar** allows you to perform tasks without having to select the corresponding options from the menus in the **Command Bar**. The following buttons are available in the **Toolbar**:

Groups allow you to organize the information displayed in the monitor by group.

Trap Rules opens the **Trap Customization Dialog Box** where you can create, modify or delete trap processing rules (for more information refer to **Configuring the Alarm Monitor** later in this chapter).

Use the **Database Toggle Switch** to change the view from the **Current Database** to the **Archive Database**. The **Current Database** is always displayed by default in the **Data Table**.

Database Maintenance allows you to set processing rules to cleanup or transfer obsolete entries from the current to the archive database at scheduled times.

The **Print Trap List Button** prints all traps currently displayed in the **Data Table**.

The Alarm Monitor Data Table

The **Alarm Monitor Data Table** lists traps from either the **Current** or **Archive Database** in descending order; if a trap is received while the **Alarm Monitor** is active, the new entry is inserted at the top and all other rows are moved toward the bottom of the **Data Table**. Each trap is displayed in a row and is color-coded according to its status (same as the icon status). The display of the **Alarm Monitor Data Table** depends on (**1**) the group currently selected in the **Groups** pick list; (**2**) the applied filter; and (**3**) the database currently being viewed (for more information refer to **Configuring the Alarm Monitor** later in this chapter).

Customizing the Display of the Alarm Monitor Data Table

Viewing traps in the **Alarm Monitor Data Table** can take a while if you have a large database to view. Therefore, the **Alarm Monitor**

includes a **Filter** function designed to allow you to display precisely those entries that you wish to view in the **Alarm Monitor Data Table**.

The **Filter** function is located just above the **Alarm Monitor Data Table** in the **Alarm Monitor Dialog Box**; it includes the **Column** pick list, the **Value** field, and the **Apply** and **View All Buttons**:

Using the Filter Function

The **Filter** function searches the **Alarm Monitor Data Table** for the values specified in the **Column** pick list and **Value** field and then displays only those traps that meet the criterion. To use the **Filter** function, do the following:

1. Select the Database you wish to view by clicking on the **Database Toggle Switch** ( ) in the **Toolbar**.
2. Select the desired group from the **Groups** pick list.
3. In the **Alarm Monitor Data Table**, position your cursor in the cell containing the value on which you wish to filter the display of the **Data Table**. The column name of the selected cell and its value are then displayed in the **Column** pick list and **Value** field respectively. You may also manually specify the search criterion by selecting the appropriate column from the **Column** pick list and entering the desired value in the **Value** field.
4. Click on the **Apply Button** once you have specified the search criterion. The **Alarm Monitor Data Table** displays only those entries matching the selected criterion.

Repeat the previous steps to further filter the display of the **Data Table**.

To return the display of the **Alarm Monitor Data Table** to its original state, simply click on the **View All Button**.

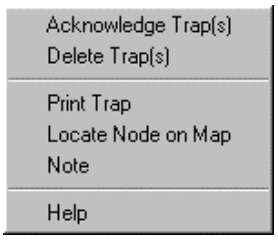
Sorting the Data Table

You can use the **Column Headers** in the **Alarm Monitor Data Table** to further customize its display. Each of the **Column Headers** is an active button that can be used to sort the contents of the **Alarm**

Monitor Data Table. For example, click on the **Date Column Header** available to all **Groups** to sort traps displayed in the **Data Table** in *ascending* order according to the date on which they were generated.

The Alarm Monitor Mouse Right Button Menu

Right-click anywhere within the **Alarm Monitor Data Table** to activate the **Alarm Monitor Mouse Right Button Menu** containing the following options:



Note: With the exception of the **Locate Node On Map**, **Note**, and **Help** options, this menu is similar to the **File Menu** in the **Command Bar**.

- **LOCATE NODE ON MAP** highlights, on your network map, the icon of the device that generated this trap. Prior to invoking this function, you must first select the desired trap by clicking on its corresponding cell in the **Data Table**.

- **NOTE** activates a dialog box where you may enter additional information pertaining to a trap. The information then appears in the corresponding **Alarm Note** field (**Details Group**). Prior to invoking this function, you must select the trap to which you wish to add a **Note** by clicking on its corresponding cell in the **Data Table**.

- **HELP** activates context-sensitive Help on the **Alarm Monitor Mouse Right Button Menu**.

Configuring the Alarm Monitor

You can configure the **Alarm Monitor** as follows:

- Modify default groups
- Add new groups
- Modify **Trap Rules**
- Manage the **Current** and **Archive Databases**

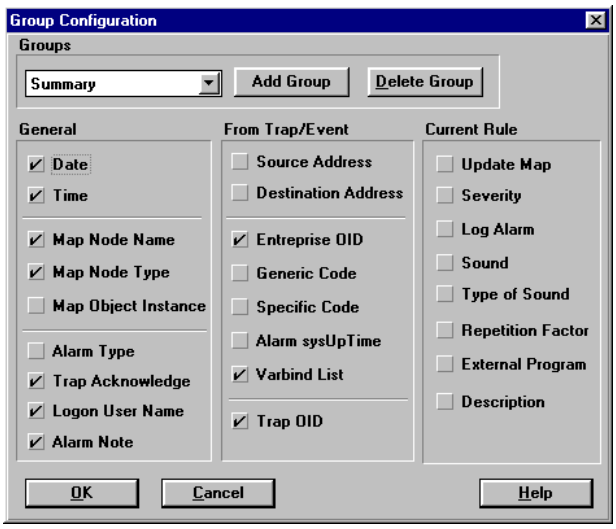
Groups

A group is a collection of fields (from the **Current** or **Archive Database**) which contain information on traps. The **Alarm Monitor Data Table** displays information defined by the group currently selected in the **Groups** pick list of the **Alarm Monitor Dialog Box**.

The **Alarm Monitor** provides three default groups, each consisting of pre-selected parameters:

- Summary – The default group which gives general information
- Detail – Displays all database information pertaining to traps
- Setting – Displays the rules applied to each trap

You can add or remove information from each group by selecting the **Groups** option from the **Configuration Menu**. This opens the **Group Configuration Dialog Box**; you can also open the **Group Configuration Dialog Box** by clicking on the button on the **Toolbar**.



Modifying a Default Group

To modify a default group:

1. Select the group you wish to modify from the **Groups** pick list.
2. Select the fields you wish to display in the **Alarm Monitor Data Table** by clicking on their corresponding radio buttons; a check mark indicates the option is currently selected. Deselect any items you do not wish to display in the **Data Table**.
3. Click on **OK** to accept your changes and close the dialog box; or, click on **Cancel** to close the dialog box without saving any changes.

Adding a New Group

You may further customize the display of the **Alarm Monitor Data Table** according to your needs by adding a new group. Click on the **Add Group Button** in the **Groups** section of the **Group Configuration Dialog Box** to open the **Add Group Dialog Box** where you may enter a name for your new group:

1. Type the name of your new group in the **Group Name** field.
2. Click on **OK** to accept the new group.
3. Select the fields you wish to display in the **Alarm Monitor Data Table** by clicking on their corresponding radio buttons in the **Group Configuration Dialog Box**; a check mark indicates the option is currently selected. Deselect any items you do not wish to display in the **Data Table**.
4. Click on **OK** to accept your changes.
5. To display your new group in the **Alarm Monitor Data Table**, simply select it from the **Groups** pick list of **the Alarm Monitor Dialog Box**.

Deleting a Group

You can delete a particular group from the **Groups** pick list by first selecting the unwanted group and then clicking on the **Delete Group Button**.

Note: If you wish, you may also delete any of the three default groups.

Trap Rules

When the **IQ View Foundation s Alarm** subsystem receives an SNMP Trap from a device on the network, it processes the trap according to specific rules that you define. For example, you may want the **Alarm Monitor** to play a sound or even launch an external program when it receives a specific type of trap.

However, in order to be able to process a particular trap according to the rules you define, the **Alarm** subsystem must be able to identify the source that generated the trap and the nature of the trap itself.

The following parameters allow the **Alarm** subsystem to identify a trap:

- **Enterprise OID** - This parameter identifies the device that generated the trap; its value is typically that of the **sysObjectID MIB Object** in the **MIB-II** system group.

- **Trap Code** (generic, specific)

    I. **Generic-trap** – a predefined Trap Code; **Generic-traps 1** to **6** are common to all SNMP agents:

1. **ColdStart: (0,0)** – indicates the agent is reinitializing itself; this trap is sent when a device is powered on.

2. **WarmStart (1,0)** – indicates the agent is reinitializing itself; this trap is sent when a device reboots due to a system failure or user intervention.

3. **Linkdown (2, 0)** – indicates a failure in communication.

4. **Linkup (3,0)** – indicates a stable communication link.

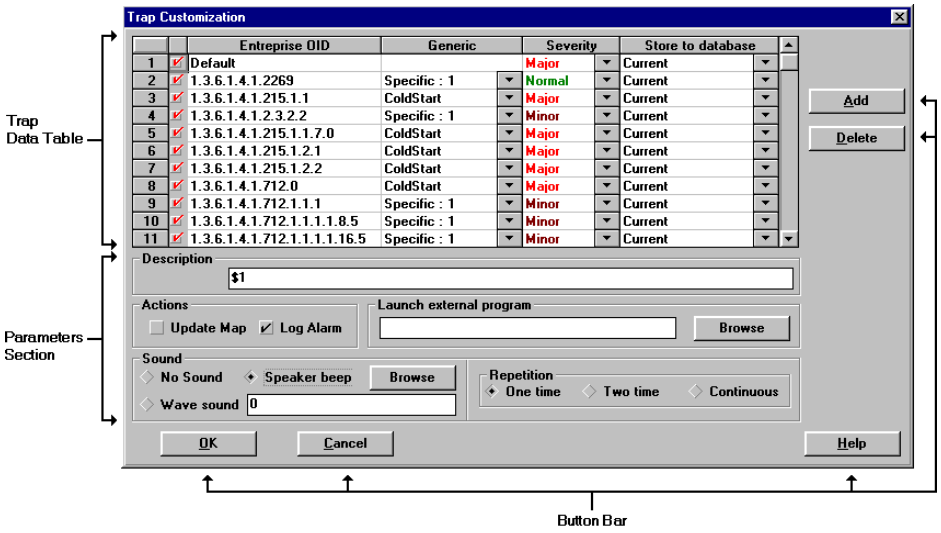
5. **Authentification failure (4,0)** – indicates the agent is unable to process an SNMP GET or SET request because the **Community Name** does not match that of the device.

6. **EqpNeighborLoss (5,0)** – signal **EGP** (**External Gateway Protocol**) indicates another device in the vicinity is currently down.

II. **EnterpriseSpecific (6, x)** - these particular traps are defined by the device manufacturer and, thus, differ from device to device.

Important: Each **Trap Code** belonging to a particular device has its own set of **Trap Rules**. The **Alarm Monitor** allows you to modify the default **Trap Rules** for a particular **Trap Code**, or add additional **Trap Codes** to a device.

To view/modify **Trap Rules**, select the **Alarm Button** ( ) in the **Toolbar** of the **Alarm Monitor Dialog Box**; or, select the **Trap Rules** option from the **Configuration Menu**. This opens the **Trap Customization Dialog Box**.



The **Trap Customization Dialog Box** displays the **Enterprise OID** of each discovered SNMP-compliant IP device on your network, along with the corresponding **Trap Codes** (generic/specific) and **Trap Rules**. It allows you to (**1**) add new entries; (**2**) customize or reconfigure the **Trap Rules** for any particular **Trap Code** belonging to a specific device; and (**3**) specify additional **Trap Codes** (generic/specific) for a particular device.

The **Trap Customization Dialog Box** is divided according to the following sections:

- The **Trap Data Table**
- A **Button Bar**, which runs along the bottom and the right-hand side of the **Trap Customization Dialog Box**.
- The **Parameters** section, which allows you to define **Trap Rules**.

The Trap Data Table

The **Trap Data Table** displays the **Enterprise OID** of all discovered SNMP-compliant IP devices on your network. Each device is entered in a separate row in the **Data Table** and may have an infinite number of **Trap Codes** assigned to it. A red check mark (✓) to the left of a particular row indicates that traps originating from the corresponding device will be received and recorded by the **Alarm** subsystem. If you

do not want a particular device to send traps to the **Alarm** subsystem, simply click on the corresponding check mark to deselect that entry.

The **Trap Data Table** displays the following information:

ENTERPRISE OID – identifies a specific subsystem or SNMP-compliant IP device.

GENERIC – pick list containing predefined **Trap Codes** corresponding to the **Enterprise OID**; predefined **Trap Codes** include **Generic Trap Codes** and **Specific Trap Codes**.

SEVERITY – the alarm level assigned to a particular **Trap Code**; the value displayed in this field varies depending on the **Trap Code** selected from the corresponding **Generic** pick list.

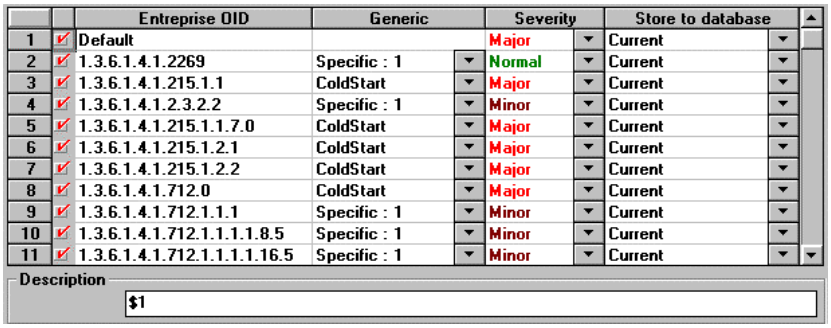
STORE TO DATABASE – allows you to determine where you want a particular trap to be stored when it is received by the **Alarm** subsystem; by default, all incoming traps are saved to the **Current Database**. You may choose from the following three options:

- Select **Ignore** to have a particular trap ignored
- Select **Current** to save a particular trap in the **Current Database**
- Select **Archive** to save a particular trap in the **Archive Database**

The value displayed in the **Store to database** field varies depending on the **Trap Code** selected from the corresponding **Generic** pick list.

The Default Entry

The **Default Entry** allows the **Alarm** subsystem to receive and record traps from devices not listed in the **Trap Data Table**. It appears as the first entry in the **Trap Data Table**. You cannot remove the **Default Entry** from the **Data Table**. You can, however, modify the **Trap Rules** defined for this entry.



		Entreprise OID	Generic	Severity	Store to database
1	✓	Default		Major	Current
2	✓	1.3.6.1.4.1.2269	Specific : 1	Normal	Current
3	✓	1.3.6.1.4.1.215.1.1	ColdStart	Major	Current
4	✓	1.3.6.1.4.1.2.3.2.2	Specific : 1	Minor	Current
5	✓	1.3.6.1.4.1.215.1.1.7.0	ColdStart	Major	Current
6	✓	1.3.6.1.4.1.215.1.2.1	ColdStart	Major	Current
7	✓	1.3.6.1.4.1.215.1.2.2	ColdStart	Major	Current
8	✓	1.3.6.1.4.1.712.0	ColdStart	Major	Current
9	✓	1.3.6.1.4.1.712.1.1.1	Specific : 1	Minor	Current
10	✓	1.3.6.1.4.1.712.1.1.1.1.8.5	Specific : 1	Minor	Current
11	✓	1.3.6.1.4.1.712.1.1.1.1.16.5	Specific : 1	Minor	Current

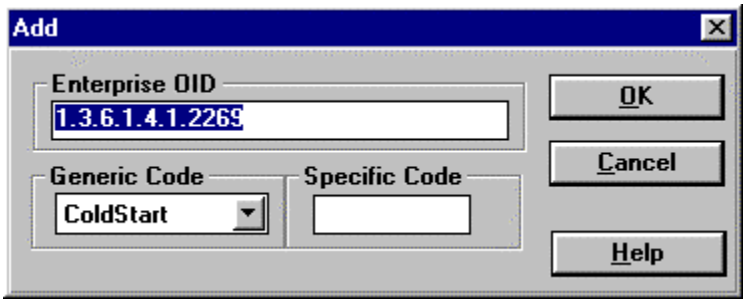
Description

$1

Adding a New Entry

The **Trap Data Table** of the **Trap Customization Dialog Box** contains an entry for each discovered SNMP-compliant IP device on your network. However, network devices unsupported by the **IQ View Foundation** are not entered into the **Trap Data Table**. If you wish to add a device to the **Trap Data Table** and thus define specific **Trap Rules** for the **Trap Codes** belonging to this device, follow the steps below:

1. Place your cursor anywhere within the **Trap Data Table** and click on the **Add Button**; this activates the **Add Dialog Box**:



2. By default, the **Enterprise OID** field in the **Add Dialog Box** displays the **Enterprise OID** of the **Trap Data Table** entry in which your cursor is currently located. Simply delete this value and enter the **Enterprise OID** of the device you wish to add to the **Trap Data Table**.
3. Select the desired **Trap Code** from the **Generic** pick list; if you wish, you may select a **Specific Trap Code** by first selecting the **Specific** option from the pick list and then entering the corresponding **Specific Trap Code** number in the **Specific Code** field.

Notes:

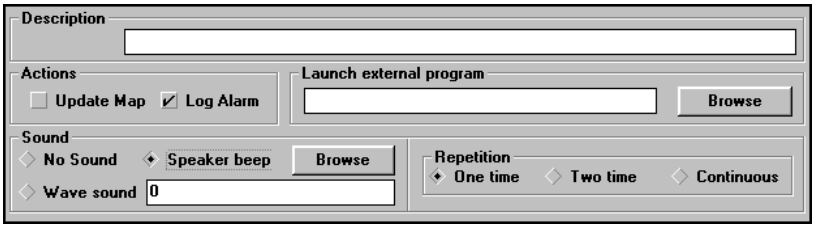
- Refer to your device's *User Manual* for information on obtaining the **Enterprise OID** and **Specific Trap Code** numbers.
- Do not enter anything into the **Specific Code** field if you have selected one of the pre-defined **Generic Trap Codes** from the **Generic Code** pick list.

4. Click on **OK** to save the new entry and close the **Add Dialog Box**; or, click on **Cancel** to close the dialog box without saving the new entry.

Your new entry now appears at the bottom of the **Trap Data Table** in a row of its own. The **Trap Code** that you assigned to this entry appears in the **Generic** pick list. You may now modify the **Trap Rules** assigned to the newly added entry's **Trap Code**.

Modifying Trap Rules

The **Trap Codes** displayed in a particular entry's corresponding **Generic** pick list of the **Trap Data Table** have their own default set of **Trap Rules** assigned to them by the **Alarm Monitor**. **Trap Rules** include the values defined for the **Severity**, **Store to database**, and **Description** fields, combined with the options selected in the **Actions**, **Launch external program**, **Sound**, and **Repetition** sections of the **Trap Customization Dialog Box**.



To modify the default **Trap Rules** defined for a particular **Trap Code**, follow the steps below:

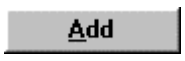
1. In the **Trap Data Table** of the **Trap Customization Dialog Box**, locate the **Enterprise OID** of the device you wish to modify.
2. From the corresponding **Generic** pick list, select the **Trap Code** for which you wish to modify **Trap Rules**; the values displayed in the **Severity**, **Store to database**, and **Description** fields, and the options selected in the **Actions**, **Launch external program**, **Sound**, and **Repetiiton** sections will be pertinent to the selected **Trap Code**.

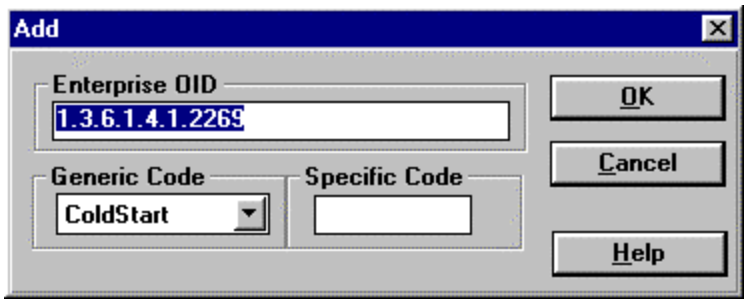
3. From the **Severity** field of the **Trap Data Table**, select the desired alarm level.
4. From the **Store to database** field, select either **Current**, **Archive**, or **Ignore** to specify where you want the selected trap to be stored when it is received by the **Alarm** subsystem.
5. Enter a description for the selected **Trap Code** in the **Description** field; this parameter is optional.
6. In the **Actions** section, select either **Update Map**, **Log Alarm**, or **both** these options by clicking on their corresponding radio buttons (a check mark indicates the option is selected). If **Update Map** is selected, the corresponding icon belonging to this device will be color-coded on your network map according to the alarm level of the selected **Trap Code** once the trap is received by the **Alarm** subsystem. Selecting **Log Alarm**, on the other hand, displays the trap in the **Alarm Monitor Data Table** of the **Alarm Monitor Dialog Box** once it is received.
7. If you want the **Alarm** subsystem to launch a particular program when it receives the selected trap, enter the path and name of the program in the **Launch external program** section, or use the **Browse** function to locate the desired program.
8. If you wish for a sound to be played when the selected trap is received by the **Alarm** subsystem, select either **Speaker beep** or **Wave sound** in the **Sound** section by clicking on their corresponding radio buttons (a check mark indicates the option is selected). If you have selected the **Wave sound** option, enter the path and name of the desired **Wave** file in the **Wave sound** field, or use the **Browse** function to search for the appropriate file.
9. Select the sound repetition factor in the **Repetition** section if you have selected either **Speaker beep** or **Wave sound** in the **Sound** section. Sounds can be played **once**, **twice** or **continuously**. If the **Continuous** option is selected, the sound cannot be toggled off until the corresponding trap is acknowledged.
10. To save your modifications click on the **OK Button** of the **Trap Customization Dialog Box**.

Adding Trap Codes

If you wish to add additional **Trap Codes** to a particular entry in the **Trap Data Table**, follow the steps below:

1. In the **Trap Data Table**, locate the **Enterprise OID** of the device to which you wish to add additional **Trap Codes** and place your cursor anywhere within the corresponding row.
2. Click on the **Add Button**; this opens the **Add Dialog Box**, which, by default, displays the **Enterprise OID** of the selected device:





3. Select the desired **Trap Code** form the **Generic** pick list; if you wish, you may select a **Specific Trap Code** by first selecting the **Specific** option from the pick list and then entering the corresponding **Specific Trap Code** number in the **Specific Code** field.

Notes:

- Refer to your device's *User Manual* for information on obtaining the **Enterprise OID** and **Specific Trap Code** numbers.
- Do not enter anything into the **Specific Code** field if you have selected one of the pre-defined **Generic Trap Codes** from the **Generic Code** pick list.

4. Click on **OK** to confirm your selection and close the **Add Dialog Box**.

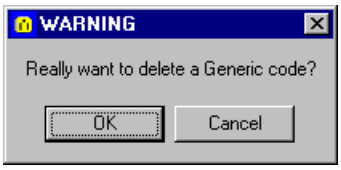
The newly added **Trap Code** now appears in the **Generic** pick list corresponding to the selected entry.

Deleting an Entry from the Trap Data Table

In order to delete a particular entry from the **Trap Data Table**, you must first delete each of its **Trap Codes** from the **Generic** pick list corresponding to that entry; this is described in the following steps:

1. In the **Trap Data Table**, locate the **Enterprise OID** of the device you wish to delete and place your cursor anywhere within its corresponding row.

2. Click on the **Delete Button**; you will be prompted with the following message:



3. Click on **OK** if you wish to continue; the first **Trap Code** in the **Generic** pick list corresponding to this entry will be removed.
4. Continue this process for each successive **Trap Code** displayed in the **Generic** pick list.

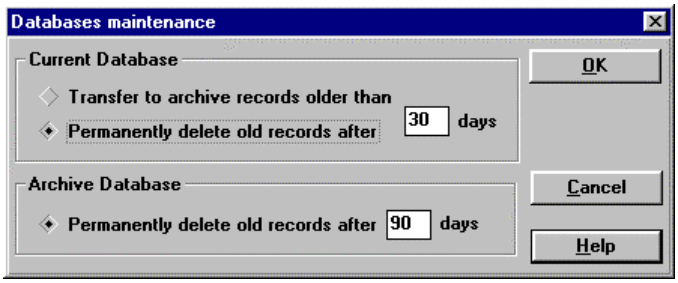
Once all **Trap Codes** have been removed from the **Generic** pick list, the unwanted entry will automatically be removed from the **Trap Data Table** and the remaining rows in the **Data Table** will be shifted up.

Database Maintenance

The **Alarm Monitor** allows you to maintain the **Current** and **Archive Databases** as follows:

- Records older than a predetermined number of days can be automatically *transferred* to the **Archive Database** from the **Current Database**
- Records older than a predetermined number of days can be automatically *deleted* from the **Current Database**
- Records older than a predetermined number of days can be permanently *deleted* from the **Archive Database**

To maintain the **Current** and **Archive Databases**, select from the **Toolbar**, or select the **Database Maintenance** option from the **Configuration Menu**. This activates the **Database Maintenance Dialog Box**:



Maintaining the Current Database

Use the **Current Database** section of the **Database Maintenance Dialog Box** to maintain the **Current Database**; the following options are available in this section:

- If you wish to have records older than a specific number of days *automatically transferred* from the **Current Database** into the **Archive Database**, select the **Transfer to archive records older than** option by clicking on its corresponding radio button and enter the desired number of days in the **days** field.

- If you wish to have records older than a specific number of days *permanently deleted* from the **Current Database**, select the **Permanently delete old records after** option by clicking on its corresponding radio button and enter the desired number of days in the **days** field.

Click on the **OK Button** to save your changes and close the **Database Maintenance Dialog Box**; or, click on **Cancel** to close this dialog box without saving your changes.

Maintaining the Archive Database

Use the **Archive Database** section of the **Database Maintenance Dialog Box** to maintain the **Archive Database**; the following option is available in this section:

- If you wish to have records older than a specific number of days *permanently deleted* from the **Archive Database**, select the **Permanently delete old records after** option by clicking on its corresponding radio button and enter the desired number of days in the **days** field.

Click on the **OK Button** to save your changes and close the **Database Maintenance Dialog Box**; or, click on **Cancel** to close this dialog box without saving your changes.

Chapter 11
Using OLE Objects

Chapter Structure

This chapter is structured according to the following topics:

- **Object Linking and Embedding (OLE)**
  - **Containers**
  - **Drag and Drop**
  - **OLE Copy/Cut/Paste**
  - **Zooming**
- **Adding an OLE Object to the Map**
  - **The Insert/Object Dialog Box**
  - **Creating an Embedded OLE Object**
  - **Creating a Linked Object**
  - **Using the Links Option**
- **Modifying an OLE/Text Object**
  - **Editing an OLE Object**
  - **Displaying the Object As an Icon**
  - **Changing the Link Source**
- **Copying Objects**
  - **Using Copy/Cut/Paste**
  - **Using the Paste Special Option**

Object Linking and Embedding (OLE)

The **IQ View Foundation** supports OLE 2.0 technology for the **Mapping** subsystem. OLE 2.0 owns a collection of powerful object-oriented technologies that can be used to extend the **IQ View Foundation's** capability and implement a number of add-on features to the maps.

OLE is well-suited to manage a general presentation space.

Containers

From an OLE point of view, a map level is a container that provides the space in which an object (node and link, or other OLE object) may be stored and displayed. The user interface (by right-clicking on the object) is defined in conjunction with the object type included. For instance, if the object on the map is a sound (*.WAV), right-clicking the popup menu will include functions like *Play* or *Rewind*.

Drag and Drop

The **Mapping** subsystem can be populated by *dragging and dropping* OLE objects. These objects can be dragged from other windows such as the ***Desktop*** or ***Explorer***.

OLE Copy/Cut/Paste

You can also include OLE objects on the maps with the **copy/cut/paste** process. If you are working with a Microsoft Word™ application, you may select text and **Copy** it onto the *Clipboard*, switch to the mapping application, select the target map, and **Paste** the text directly onto the map.

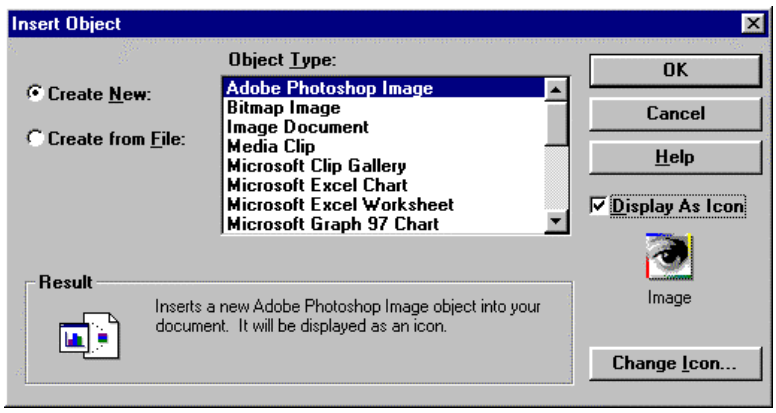
Zooming

OLE V2.0 supplies an advanced View function to “zoom in/out” all OLE objects in the container.

Adding an OLE Object to the Map

The Insert/Object Dialog Box

The **Add Object** option in the **Edit Menu** allows you to define objects on the map.



- Select the appropriate application to create the desired object you wish to insert onto your map by using the scroll bar in the **Object Type:** list box.

Note: Highlighting applications in the **Object Type:** list box causes the **Result** section at the bottom of the **Insert Object Dialog Box** to display a brief description of the application supporting the object.

Creating an Embedded OLE Object

Create an OLE text object to add customized text directly onto the map.

1. Select the word processor required in the dialog box (such as Microsoft Word or WordPerfect) and click on **OK** to start the process to include the object.
2. At this point the following may occur:

   - The object is ready to be edited in-place. In other words, an object area will be defined on your background map; all **IQ View Foundation** menus will be replaced by your text-editing application menu.

     Create, close and save your object according to your text editor application:

     - The order in which you may close the application in use and save and insert your object onto your network map varies according to the application you have selected. In the menu use *File/Save* or *Update* or *Close And return* to save the object.

     - You can also right click directly on the map to close the word processing applications.

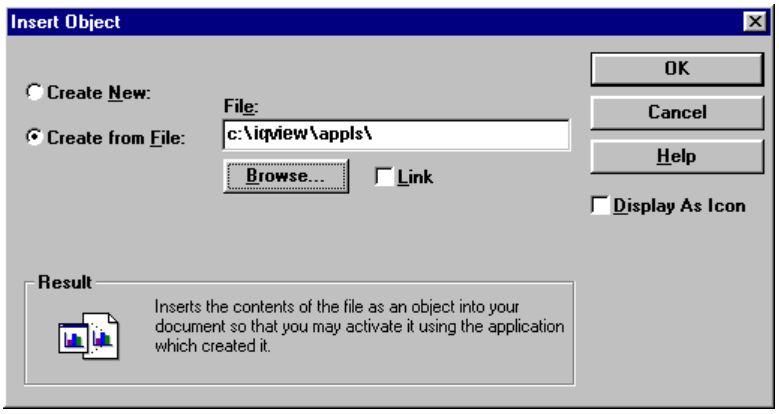
   - The application supporting the object is launched (typically for OLE V1.0 objects). Create the text as usual and then File/Save or File/Update your work. The text will be transferred onto the map.

Creating a Linked Object

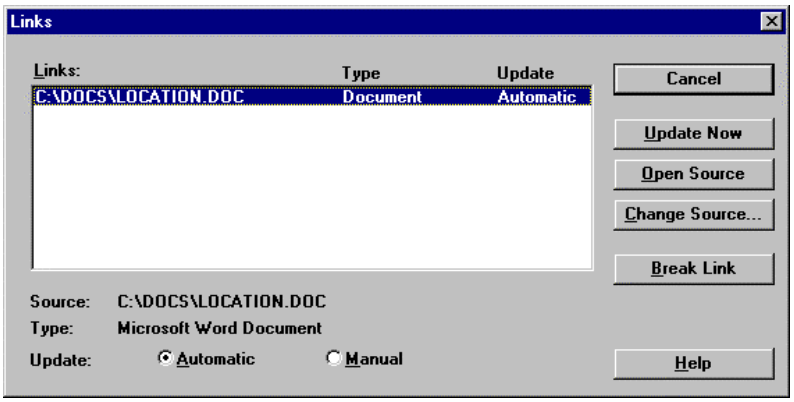
Linking an External File Object

1. Select **Create from File** to insert an object onto your map. You will be prompted for the file name of the object you wish to place onto your map. The **Browse** option is available to help you search if you do not know the exact location of your file.
2. Choose **Link** to automatically update the object on the map if changes are made to the external source object.
3. Select **Display As Icon** if you want your Text OLE object to be represented by an icon, making it an **Embedded OLE Object**; refer to the **Display As Icon** section in this chapter for information on changing the default icon.

4. Click **OK** to both close the dialog box and deposit your object onto the map.



Using the Links Option



The **Links Dialog Box** lists all the defined links on the **IQ View Foundation**. Selecting a link displays/enables the following:

- **SOURCE** displays the path and filename of the object you have linked.
- **TYPE** refers to the application that created the object.
- **UPDATE** is (**A**) **Automatic** if **Link** was selected in the **Insert Object Dialog Box** and (**B**) **Manual** if you do not wish an automatic update.

- **UPDATE NOW** refreshes an added object. Use this option if you had previously changed **Update** to **Manual**.
- **OPEN SOURCE** opens the application that created the added object so you may modify the source object.
- **CHANGE SOURCE** allows you to change the original source path and directory.
- **BREAK LINK** to remove the link. Objects will still be displayed on the map but double-clicking the object will not activate the application that created it (see **Add Object**).

Modifying an OLE/Text Object

Editing an OLE Object

To edit an OLE object on the map you can either:

- Double-click the object on the map to open the application supporting the object.
- Right-click and use the selections in the popup menu.
- Check in the menu after **Edit/Add** object if an option is available to edit the object. The object must be selected on the map.

Displaying the Object As an Icon

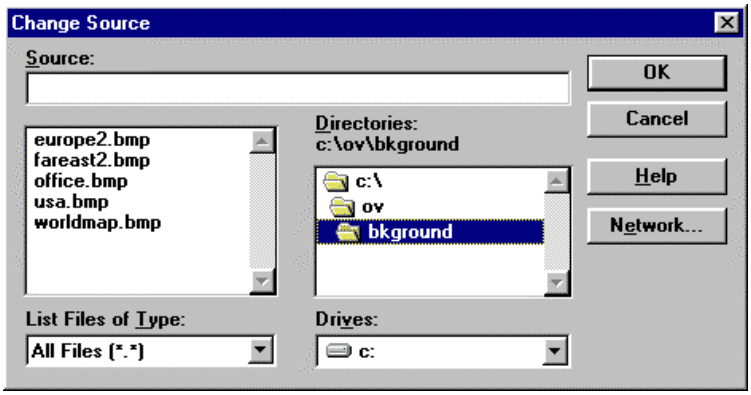
- Clicking on the **Display As Icon** option in the **Insert Object Dialog Box** causes the **Change Icon Button** to immediately appear, allowing you to customize your icon; clicking on this button opens the **Change Icon Dialog Box**.

1. Select **Current** to change the icon for this instance only. Selecting **Default** to change the icon default image is not applicable here.
2. Select the new icon image from the designs displayed in the **From File** box by clicking on the desired image.
3. Select **From File** to import new designs for your icon. Select **Browse** if you do not know the exact location.
4. Type a new label for your icon in the **Label** box.
5. Click **OK** to accept or **Cancel** to terminate the **Change Icon** option.

Changing the Link Source

Once a linked object is inserted, you can change the *link source* (the pointer to the external file) of this object as follows:

1. Type in the source path and file name in the field.
2. Search for the location to which you wish to change by selecting a new drive from the pick list in the **Drive** field.
3. Select a directory and folder, if required, from the **Directory** field.
4. Select a new source file.
5. Click **OK** to accept the change and close the **Change Source Dialog Box**.
6. Select **Update Now** in the **Links Dialog Box** to update the Link and map with the new source.



Copying Objects

Using Copy/Cut/Paste

You can **Copy**, **Cut** and **Paste** OLE objects exactly duplicating **IQ View Foundation** objects.

Using the Paste Special Option

During multiple ***cut/pastes*** with different applications, all copied objects are kept on the ***Clipboard***. One object of each type is typically kept on the ***Clipboard***.

The normal “paste” copy is the first object found on the ***Clipboard*** without any selection. For non-complex operation, “paste” is always used.

Select the exact object that you want on the clipboard with the advanced “Paste Special” option.

1. Open the desired application. Save the file before you link the information.
2. Select the information you want to link from your application.
3. From the **Edit Menu**, select **Copy**.
4. Switch to the map/submap.
5. Select **Paste Special** from the **Edit Menu**.

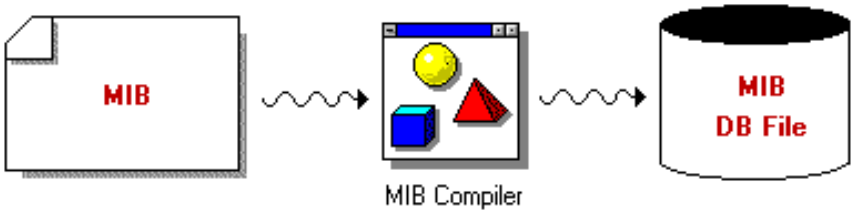
6. Select the **Paste Link Button** to paste a linked object, or select **Paste** to place an unlinked object.
7. Under **As**, select the format you want and then click on **OK**. The **Result** box will show the effect of your action.

Select **Display as Icon** if your object is too large and you wish only an icon to be displayed on your map. Refer to ***Add Object*** for more information about displaying and changing icons.

Chapter 12
The MIB Compiler

The **MIB Compiler** compiles standard or device specific MIBs into a database file. During the compilation process, the **MIB Compiler** performs three major functions: (**1**) it thoroughly scans the MIB file(s) specified by the user for syntax errors and other irregularities; (**2**) it then extracts information pertaining to MIB Objects and their corresponding values from the MIB file(s); and (**3**) it generates a database file based on this information (1&2).

The following diagram illustrates this process:



Prior to transferring the compiled information to a database file, the **MIB Compiler** converts the information into Dot Notation format, which conforms to the SNMP naming convention of MIB Objects. Once the MIB Compiler has generated a database file, you can view its contents in any standard DataBase application supporting either the DBF or DB format. This can be very useful, because unlike a typical MIB file, each MIB Object and its related information is stored as a record in the database file in alphabetical order, giving the user the opportunity to effortlessly scrutinize the contents of a particular MIB, and observe the parent-child relationship that exists between the various MIB Objects contained within.

The **MIB Compiler** is particularly advantageous in that it enables the **IQ View Foundation** to integrate devices unsupported by a GUI (thus unmanageable by the **IQ View Foundation**). Once such devices are redefined and added to your map, **Node Browser** can then be used to view and modify their **MIB Object Values** so that even they may be managed according to your need.

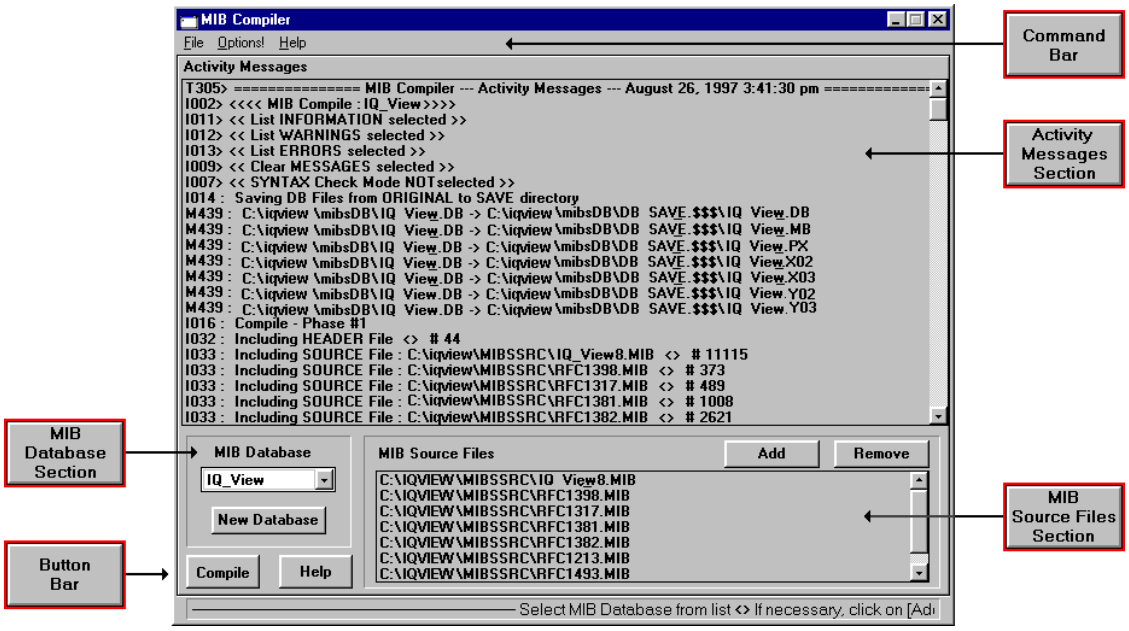
Chapter Structure

This chapter is structured according to the following topics and subtopics:

- **The MIB Compiler Dialog Box**
  - **Command Bar**
  - **Activity Messages Section**
  - **MIB Source Files Section**
  - **MIB Database Section**
  - **Button Bar**
  - **The New Database Dialog Box**
- **Compiling MIB Files**
  - **Update/Overwrite an Existing Database**
  - **Creating a New Database File**
  - **Adding MIB Files to the MIB Source Files List Box**
  - **Removing MIB Files from the MIB Source Files List Box**
  - **MIB Database Structure**
  - **Reports**
- **Compiler Messages**
- **Integrating Unsupported Devices**
  - **Redefining Unsupported Devices**
  - **Adding an SNMP Custom Node to your Map**
  - **Configuring your SNMP Custom Node**
  - **The Node Browser**

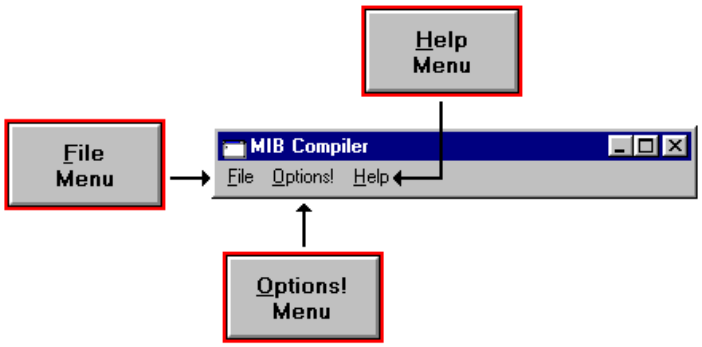
The MIB Compiler Dialog Box

The **MIB Compiler Dialog Box** is the central point for observing and configuring the compilation process. It is divided according to the following sections: the **Command Bar**, the **Activity Messages** section, the **MIB Database** section, the **MIB Source Files** section, and the **Button Bar** including **Compile** and **Help**.



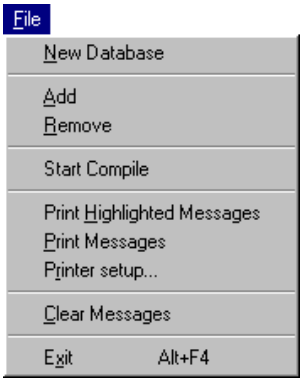
Command Bar

The **Command Bar** of the **MIB Compiler Dialog Box** contains the following menus:



File Menu

Clicking on **File** opens the **File Menu** which includes the following options:



NEW DATABASE activates the **New Database Dialog Box** where you may enter a valid file name for a new database; refer to the **New Database Dialog Box** later in this chapter.

ADD allows you to add MIB source files to the **MIB Source Files** list box. When invoked, the **Add** option activates a generic **Open Dialog Box** where you may select one or more MIB source files to compile. Once you select a MIB file, it automatically appears - along with its path and location - in the **MIB Source Files** list box of the **MIB Source Files** section.

Notes:

- There is no limit to the number of MIB source files that you can add to the **MIB Source Files** list box; you are, however, advised not to exceed 100 files as this may drastically reduce the efficiency of the compilation process. A scroll-bar appears in the **MIB Source Files** list box when the number of MIB source files selected exceeds the viewable area of the list.
- You cannot add the same MIB source file twice to a particular target database's list of MIB source files.
- The **Add** option functions similarly to the **Add Button** in **the MIB Source Files** section.

REMOVE allows you to remove MIB source files from the **MIB Source Files** list box. The **MIB Compiler** allows you to remove only one MIB source file at a time; additionally, as a further precautionary measure, each time you invoke the **Remove** option, the **MIB Compiler** will display a message prompting you to confirm the action.

Notes:

- You must select at least one MIB source file in the **MIB Source Files** list box prior to invoking the **Remove** option.
- Do not remove the last remaining MIB source file from the **MIB Source Files** list box if you wish to have the corresponding target database available in the **MIB Database** pick list at all times.
- The **Remove** option functions similarly to the **Remove Button** in the **MIB Source Files** section.

START COMPILE starts the compiler once the appropriate target database file and MIB source files have been selected. The **Start Compile** option is replaced with **Stop Compile** during the compilation process; you can invoke the **Stop Compile** option at any time to abort compilation.

Notes:

- Aborting the compilation process will have no adverse effects on the selected target database file nor on any of its related MIB source files. In fact, if you are using an existing database file as your target database, the **MIB Compiler** saves a copy of the file prior to compilation. This saved version is then restored to its original location if any one of the following two conditions occurs: (**1**) the compilation process is aborted due to user intervention; or, (**2**) the maximum number of allowable compilation errors is attained (as defined in the **Setup Options Dialog Box**).
- You may also use the **Compile Button** in the **Button Bar** to initiate the compilation process.

PRINT HIGHLIGHTED MESSAGES allows you to send to your printer only those messages that you have selected in the **Activity Messages** list box. At least one message must be selected

(highlighted) in the **Activity Messages** list box for this option to be active.

PRINT MESSAGES sends all compiler messages in the **Activity Messages** list box to the default printer. You cannot select any particular messages to be printed.

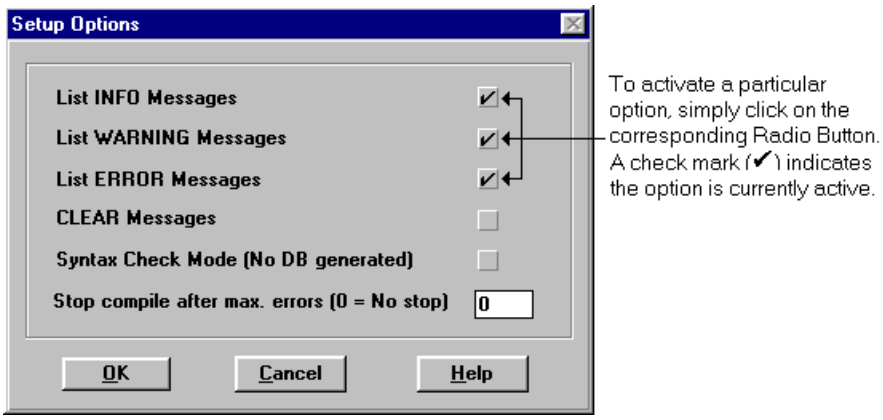
PRINTER SETUP... allows you to access printer options for the active printer. The driver for the printer must be installed and selected from the **Windows** *Control Panel* prior to printing. The dialog box displayed is pertinent to your default printer.

CLEAR MESSAGES removes all compiler messages from the **Activity Messages** list box. By activating the **Clear Messages** option in the **Setup Options Dialog Box**, the **MIB Compiler** can be prompted to automatically clear all compiler messages from the **Activity Messages** list box each time a new compile session is initiated, or when a new target database is selected from the **MIB Database** pick list. Refer to the **Options! Menu** for further information on the **Clear Messages** function.

Use the **EXIT** option to quit the **MIB Compiler**.

Options! Menu

Clicking on **Options!** opens the **Setup Options Dialog Box** where you may configure various compiler options:


Setup Options
List INFO Messages
List WARNING Messages
List ERROR Messages
CLEAR Messages
Syntax Check Mode (No DB generated)
Stop compile after max. errors (0 = No stop)
0
OK
Cancel
Help
To activate a particular option, simply click on the corresponding Radio Button. A check mark (✔) indicates the option is currently active.

The **Setup Options Dialog Box** includes the following options and buttons:

LIST INFO MESSAGES causes the **MIB Compiler** to display, in the **Activity Messages** list box, all informational messages generated during compilation. (The letter **I** preceding the message number identifies informational messages: **I**036).

Note: This option does not apply to informational messages identified by a greater-than sign (I002**>**...); these particular messages are always displayed regardless of how you configure the **List INFO Messages** option. For more information on the various compiler messages, refer to **Compiler Messages** later in this chapter.

LIST WARNING MESSAGES causes the **MIB Compiler** to display, in the **Activity Messages** list box, all error messages generated during compilation. (Warning the letter **W** preceding the message number identifies messages: **W**104.) For more information on the various compiler messages, refer to **Compiler Messages** later in this chapter.

LIST ERROR MESSAGES causes the **MIB Compiler** to display, in the **Activity Messages** list box, all error messages generated during compilation. (The letter **E** preceding the message number identifies Error messages: **E**201.) For more information on the various compiler messages, refer to **Compiler Messages** later in this chapter.

CLEAR MESSAGES automatically clears ALL compiler messages from the **Activity Messages** list box each time a new compile session is initiated, or, when a new target database is selected from the **MIB Database** pick list.

Note: You may clear messages from the **Activity Messages** section at any time, except during compilation, by selecting the **Clear Messages** option from the **File Menu**.

SYNTAX CHECK MODE (NO DB GENERATED) prompts the **MIB Compiler** to enter **Syntax Check Mode**. While in **Syntax Check Mode** the compiler scans the selected MIB source file for errors but does NOT generate a database file. You are therefore not obliged to perform a lengthy compilation on a MIB file when you only wish to scan for errors.

STOP COMPILE AFTER MAX. ERRORS (0 = NO STOP) allows you to specify the maximum number of errors that can be generated during

a compile before the compilation process is aborted. Enter a value between 0 and 999; the default is 30. If you enter 0 as the maximum number of errors, the compilation process will not be interrupted.

Note: Aborting the compilation process will have no adverse effects on the selected target database file or on any of its related MIB source files. In fact, if you are using an existing database file as your target database, the **MIB Compiler** saves a copy of the file prior to compilation. This saved version is then restored to its original location if any one of the following two conditions occurs: (**1**) the compilation process is aborted due to user intervention; or, (**2**) the maximum number of allowable compilation errors is attained.

Click on the **OK Button** to save your changes and close the **Setup Options Dialog Box**.

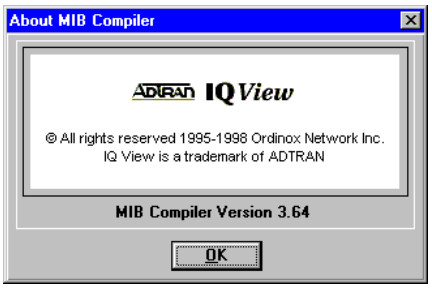
Click on **Cancel** to close the **Setup Options Dialog Box** without saving any changes.

Click on **Help** to obtain context-sensitive help on the **Setup Options Dialog Box**.

Help Menu

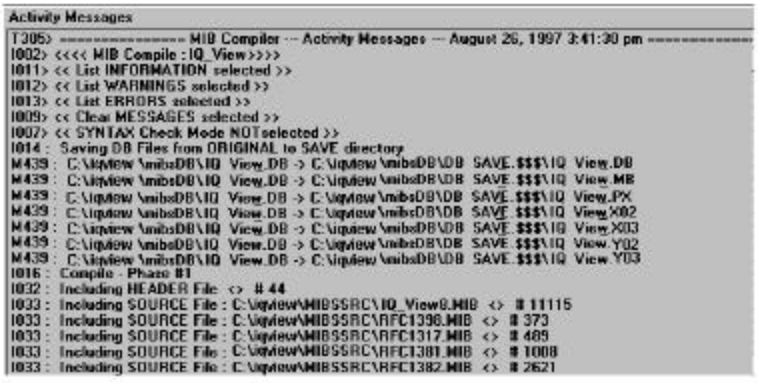
HELP activates context-sensitive help on the **MIB Compiler**.

ABOUT... opens the **About MIB Compiler Dialog Box** which displays the current version number of the **MIB Compiler** along with copyright information:



Activity Messages Section

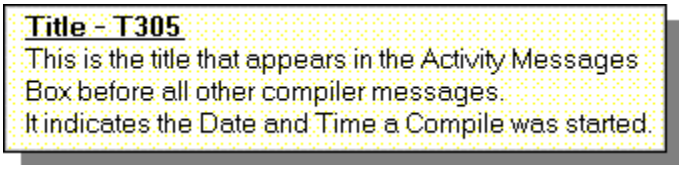
The **Activity Messages** section displays the various **Informational**, **Warning**, and **Error** messages generated by the **MIB Compiler** during compilation. It provides you with a step-by-step overview of the compilation process by displaying messages and status information during compilation.



Note: You can use the scroll-bar in the **Activity Messages** section to view messages previously generated by the **MIB Compiler**; this can be done even while the **MIB Compiler** is busy compiling.

The first line displayed in the **Activity Messages** section indicates the date and time that a compile is initiated. Several lines of informational messages that are identified by the greater-than-sign follow it (**>**). These lines identify the target database file currently displayed in the **MIB Database** field and its associated **MIB Source** files; they also display configuration settings for the **MIB Compiler** as defined in the **Setup Options Dialog Box**. You can obtain a

detailed description of any message in the **Activity Messages** section by right-clicking on the desired message; this activates a floating message box containing a full description of the message:


Title - T305
This is the title that appears in the Activity Messages Box before all other compiler messages.
It indicates the Date and Time a Compile was started.

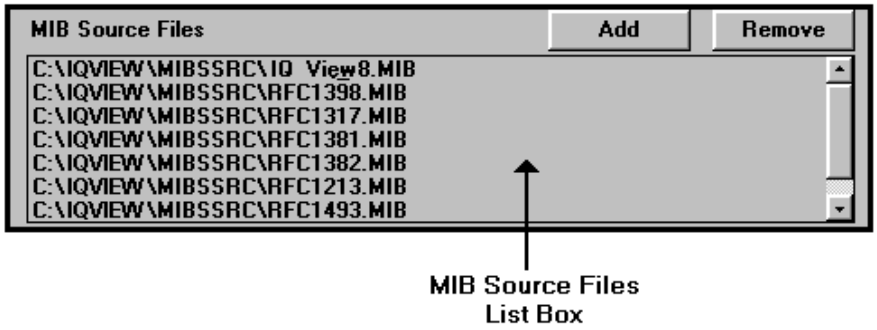
For further information on the various compiler messages that appear in the **Activity Messages** section, refer to **Compiler Messages** later in this chapter.

MIB Source Files Section

The **MIB Source Files** section of the **MIB Compiler Dialog Box** performs two major functions:

(1) it displays all MIB source files associated with the target database currently displayed in the **MIB Database** field;

(2) it allows you to modify the current list of MIB source files for the target database currently displayed in the **MIB Database** field, or define a new list if one does not already exist.



The **MIB Source Files** section includes the **MIB Source Files** list box where the selected MIB files are displayed, and the **Add** and **Remove Buttons** are used to add and remove MIB source files from the **MIB Source Files** list box.

MIB Source Files list box

The **MIB Source Files** list box displays the MIB files corresponding to the target database file currently displayed in the **MIB Database** field. The MIB files displayed in the **MIB Source Files** list box are selected by the user subsequent to specifying the desired target database file; they are then sequentially processed and compiled by the **MIB Compiler** to create the specified target database file.

You can add or remove MIB source files from the **MIB Source Files** list box by using the **Add** or **Remove** function. You can also view the contents of a MIB source file by right-clicking on the desired file; the selected MIB source file will then either be opened in ***Windows Notepad*** or ***WordPad*** depending on its size.

Note: The **MIB Source Files** list box also displays the exact path and location of each MIB source file.

Add Button

The **Add Button** allows you to add MIB source files to the **MIB Source Files** list box. For more information on this function, refer to the **Add** option of the **File Menu** earlier in this chapter.

Remove Button

The **Remove Button** allows you to remove MIB source files from the **MIB Source Files** list box. For more information on this function, refer to the **Remove** option of the **File Menu** earlier in this chapter.

MIB Database Section

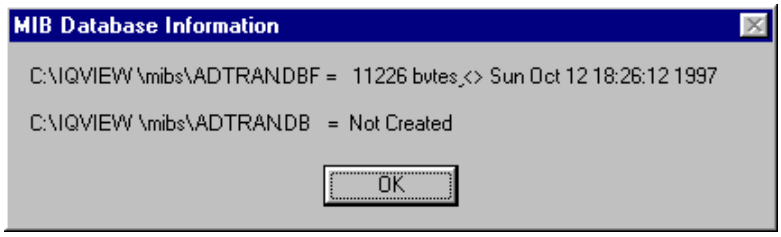
The **MIB Database** section allows you to (**1**) specify a new target database file to be created by the **MIB compiler** during compilation, or (**2**) select a previously compiled database file from the **MIB Database** pick list. It includes the **MIB Database** pick list and the **New Database Button**.

MIB Database Pick List

The **MIB Database** pick list contains a list of all previously compiled database files. If you wish to recompile one of these files, simply select the desired file from the pick list. The selected file then appears in the **MIB Database** field as the target database. MIB source files previously used to compile the selected database file are also displayed in the **MIB Source Files** list box; use the **Add** or **Remove** function to modify the list of MIB source files.

Notes:

- Any changes you make to a list of MIB source files associated with a particular database are reflected when you next select that database for re-compilation from the **MIB Database** pick list.
- For a target database to be available in the **MIB Database** pick list at all times, it must have at least one corresponding MIB source file in the **MIB Source Files** list box.
- You can obtain detailed information about a particular target database file by first selecting the desired file from the **MIB Database** pick list, and then clicking the right mouse button over the **MIB Database** field name; this activates the **MIB Database Information Dialog Box**:


MIB Database Information
C:\IQVIEW \mibs\ADTRANDBF = 11226 bytes <> Sun Oct 12 18:26:12 1997
C:\IQVIEW \mibs\ADTRANDB = Not Created
OK

The **MIB Database Information Dialog Box** displays (**1**) the exact path and location of the selected target database file; (**2**) its size in bytes; and (**3**) the exact date and time it was last updated.

New Database Button

The **New Database Button** activates the **New Database Dialog Box** where you may enter a valid file name for a new database; during compilation, the **MIB Compiler** will create the specified database file. This function may be useful in situations where you do not wish to select, as your target database, an existing database file from the **MIB Database** pick list. Refer to the **New Database Dialog Box** later in this chapter for further information on the usage of this function.

Button Bar

The **Button Bar** of the **MIB Compiler Dialog Box** includes the **Compile** and **Help Buttons**:

Clicking on the **Compile Button** starts the compilation process. Prior to clicking on this button, however, you must first specify a target database file by either selecting an existing database file from the **MIB Database** pick list, or by defining a new target database file using the **New Database** function. You must then select the desired MIB source files you wish to compile with your target database; refer to **Compiling MIB Files** later in this chapter for further information.

Notes:

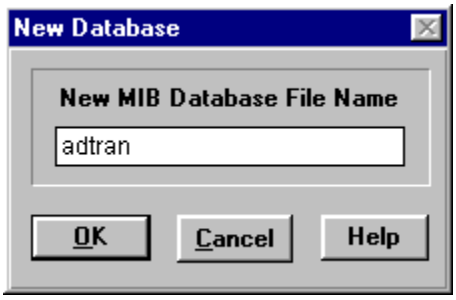
- During compilation the **Compile Button** is replaced with the **Cancel Button** which can be used to abort the compilation process at any time.
- The **Compile Button** functions similarly to the **Start Compile** option of the **File Menu**.

The **Help Button** activates context-sensitive help on the **MIB Compiler**.

The New Database Dialog Box

The **New Database Dialog Box** allows you to enter a valid file name for a new database; during compilation, the **MIB Compiler** will create

the specified database file. This function may be useful in situations where you do not wish to select, as your target database, an existing database file from the **MIB Database** pick list.



To create a new database file:

1. Enter a file name in this field for the new database you wish to create. The file name cannot exceed eight alphanumeric characters.

Note: The file name you enter for your new database must be distinct from any database files currently available in the **MIB Database** pick list. You may, however, enter the name of an existing database file as long as it is not available in the **MIB Database** pick list.

2. Click on **OK** to confirm your selection and close the **New Database Dialog Box**; the file name for your new database will then appear in the **MIB Database** field.

Note: Once the file name for your new database appears in the **MIB Database** field, you must immediately select the MIB source files you wish to include in the compilation by using the **Add** function. The file name for your new database will be cleared from the **MIB Database** field if you select an existing database file from the **MIB Database** pick list without first selecting any MIB source files.

Compiling MIB Files

This section describes the steps involved in successfully compiling your MIB file(s), and generating the appropriate DBF or DB format MIB database.

The **MIB Compiler** offers two methods of compiling MIB files:

1. You can select an existing database file as the target Database, which is overwritten by the **MIB Compiler** during compilation.

Or

2. You can specify a new database file as the target Database, which will be created by the **MIB Compiler** during compilation.

Update/Overwrite an Existing Database

1. Select a target database file from the **MIB Database** pick list. Once you select the desired target database file, the **MIB Source Files** list box displays all previously compiled MIB source files in order to create the selected database.
2. If you wish to recompile the selected target database using a set of MIB source files other than those currently displayed in the **MIB Source Files** list box, use the **Add** or **Remove** function to either add additional MIB source files to the **MIB Source Files** list box, or remove any unwanted files. For further information on the **Add** and **Remove** functions, refer to **Adding MIB Files to the MIB Source Files List Box** and **Removing MIB Files from the MIB Source Files List Box** respectively, later in this chapter.

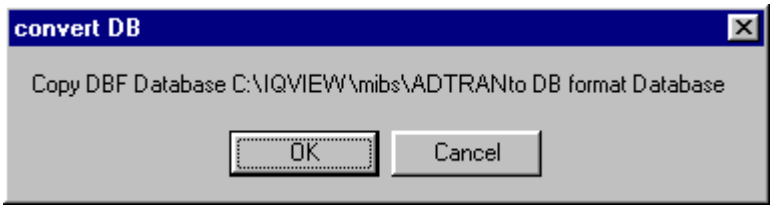
Notes:

- Any changes you make to a list of MIB source files associated with a particular database are reflected when you next select that database for re-compilation.
- When you remove the last remaining MIB source file from the **MIB Source Files** list box, the corresponding target database will automatically be removed from the **MIB Database** pick list.

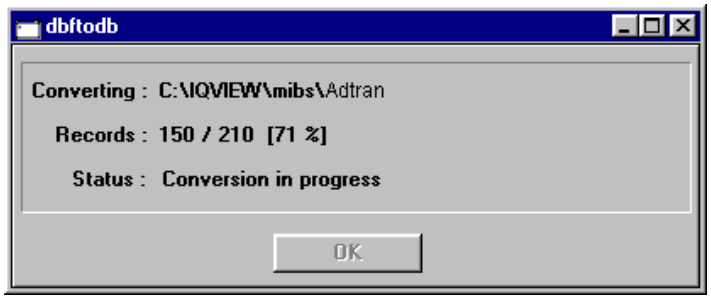
3. Once you have made your selections, click on the **Compile Button**, or select the **Start Compile** option from the **File Menu** to begin the compilation process. If you have selected an existing database file as your target database, the **MIB Compiler** displays a warning message prior to overwriting the specified database file. Click on **OK** if you wish to continue.

Depending on the size and number of MIB source files, the compilation process could take several minutes to complete. The progress of the compilation process is displayed in the **Status Bar** at the bottom of the **MIB Compiler Dialog Box**; in addition to this, you can follow each step of the compilation process by observing compiler messages as they appear in the **Activity Messages** section.

By design, the **MIB Compiler** generates a **DBF** format MIB database. Once compilation has ended, however, the **MIB Compiler** offers you the option of having your newly created **DBF** format MIB database converted into a **DB** format database:



- Click on **Cancel** if you do not wish to continue with the **DBF** to **DB** conversion. If, however, you want the **MIB Compiler** to generate a **DB** format MIB database, click on the **OK Button**. This starts the **DBF to DB Conversion Program** (*shown*); you will be notified of a successful conversion once the process is complete.



Notes:

- You can abort the compilation process at any time by clicking on the **Cancel Button**, which replaces the **Compile Button** when compilation is initiated. You cannot, however, abort the **DBF to DB Conversion Program**; this program continues running until completion. The compilation process can also be aborted by

selecting the **Stop Compile** option from the **File Menu**; the **Stop Compile** option replaces the **Start Compile** option.

- Aborting the compilation process will have no adverse effects on the selected target database file nor on any of its related MIB source files. In fact, if you are using an existing database file as your target database, the **MIB Compiler** saves a copy of the file prior to compilation. This saved version is then restored to its original location if any one of the following two conditions occurs: (**I**) the compilation process is aborted due to user intervention; or, (**II**) the maximum number of allowable compilation errors is attained (as defined in the **Setup Options Dialog Box**).

Creating a New Database File

1. Click on the **New Database Button** in the **MIB Database** section, or select the **New Database** option from the **File Menu**. Enter a file name for your new database in the **New Database Dialog Box** and click on the **OK Button**. The file name you entered should now appear in the **MIB Database** field.

Notes:

- The file name you enter for your new database must be distinct from the database files currently available in the **MIB Database** pick list. You may, however, enter the name of an existing database file as long as it is not available in the **MIB Database** pick list.

- Once the file name for your new database appears in the **MIB Database** field, you must immediately select the MIB source files you wish to include in the compilation by using the **Add** function. The file name for your new database will be cleared from the **MIB Database** field if you select an existing database file from the **MIB Database** pick list without first selecting any MIB source files; you will then be forced to re-enter the file name for your new target database. Refer to **The New Database Dialog Box** earlier in this chapter for further information on its usage.

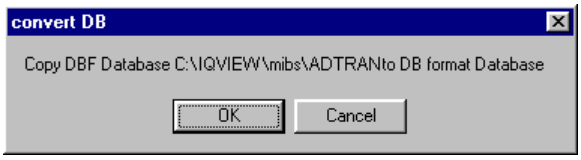
2. Use the **Add** or **Remove** function to either add additional MIB source files to the **MIB Source Files** list box or remove any unwanted files. For further information on the **Add** and **Remove** functions, refer to **Adding MIB Files to the MIB Source Files List Box** and **Removing MIB**

Files from the MIB Source Files List Box respectively, later in this chapter.

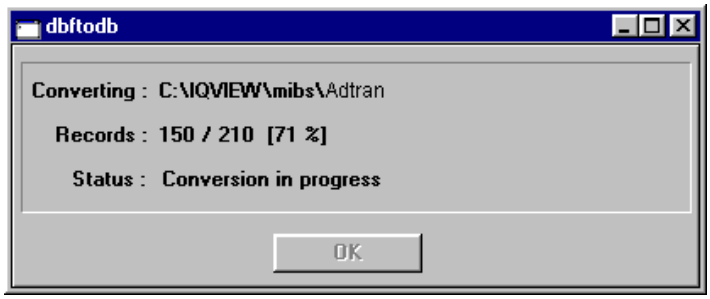
3. Once you have made your selections, click on the **Compile Button**, or select the **Start Compile** option from the **File Menu** to begin the compilation process. If you have selected an existing database file as your target database, the **MIB Compiler** displays a warning message prior to overwriting the specified database file. Click on **OK** if you wish to continue.

Depending on the size and number of your MIB source files, the compilation process could take several minutes to complete. The progress of the compilation process is displayed in the **Status Bar** at the bottom of the **MIB Compiler Dialog Box**; in addition to this, you can follow each step of the compilation process by observing compiler messages as they appear in the **Activity Messages** section. The **MIB Compiler** informs you when compilation is successfully completed.

By design, the **MIB Compiler** generates a **DBF** format MIB database. Once compilation has ended, however, the **MIB Compiler** offers you the option of having your newly created **DBF** format MIB database converted into a **DB** format database:



- Click on **Cancel** if you do not wish to continue with the **DBF** to **DB** conversion. If, however, you want the **MIB Compiler** to generate a **DB** format MIB database, click on the **OK Button**. This starts the **DBF to DB Conversion Program** (*shown*); you will be notified of a successful conversion once the process is complete.



Notes:

- You can abort the compilation process at any time by clicking on the **Cancel Button**, which replaces the **Compile Button** when compilation is initiated. You cannot, however, abort the **DBF to DB Conversion Program**; this program continues running until completion. The compilation process can also be aborted by selecting the **Stop Compile** option from the **File Menu**; the **Stop Compile** option replaces the **Start Compile** option.

- Aborting the compilation process will have no adverse effects on the selected target database file nor on any of its related MIB source files. In fact, if you are using an existing database file as your target database, the **MIB Compiler** saves a copy of the file prior to compilation. This saved version is then restored to its original location if any one of the following two conditions occurs: (**I**) the compilation process is aborted due to user intervention; or, (**II**) the maximum number of allowable compilation errors is attained (as defined in the **Setup Options Dialog Box**).

- At the end of compilation, your newly created database is stored in the **MIB Database** pick list so that you can re-compile this database at a later time if you wish.

Adding MIB Files to the MIB Source Files List Box

The following instructions describe the steps involved in adding MIB source files to the **MIB Source Files** list box for the corresponding target database currently displayed in the **MIB Database** field.

1. Select the desired target database from the **MIB Database** pick list. Or, if you wish to create a new target database, use the **New Database** function. The corresponding MIB source files are displayed in the **MIB Source Files** list box. (The **MIB Source Files** list box appears empty if you have specified a new target database.)
2. Click on the **Add Button** in the **MIB Source Files** section, or select the **Add** option from the **File Menu**. This activates the **Open Dialog Box**.

   Note: By default, the **MIB Compiler** displays the **`\IQView\MIBssrc\`** directory where all MIB files are stored. You may, however, navigate to a different drive and directory to locate the desired MIB files.

3. Select the MIB files you wish to include in the compilation; you may select more than one file simultaneously.
4. Click on the **OK Button** of the **Open Dialog Box** once you have made your selections; this closes the **Open Dialog Box** and displays the selected MIB source files in the **MIB Source Files** list box along with their exact paths and locations.

Removing MIB Files from the MIB Source Files List Box

The following instructions describe the steps involved in removing MIB source files from the **MIB Source Files** list box for the corresponding target database currently displayed in the **MIB Database** field:

1. Select the desired target database from the **MIB Database** pick list. The corresponding MIB source files are displayed in the **MIB Source Files** list box.
2. In the **MIB Source Files** list box, select a MIB source file that you wish to remove from the list.
3. Click on the **Remove Button** in the **MIB Source Files** section, or select the **Remove** option from the **File Menu**. The **MIB Compiler** displays a warning message prompting you to confirm the action; click on the **OK Button** to continue. The selected MIB source file is immediately removed from the list.

Notes:

- The **MIB Compiler** allows you to remove only one MIB source file at a time.

- Do not remove the last remaining MIB source file from the **MIB Source Files** list box if you wish to have the corresponding target database available in the **MIB Database** pick list at all times.

MIB Database Structure

A MIB database, like any conventional database file, is composed of records. A MIB database record consists of information specific to the various MIB Objects of a particular MIB source file. Each record contains 19 fields and is structured according to the following format:

1. MibName
2. MibDotNotation
3. ParentName
4. LeafType
5. MibObject
6. Syntax
7. SyntaxList
8. Access
9. Status
10. Description
11. ColumnWidth
12. Formula
13. MibHeader
14. SynRange_S
15. SynRange_E
16. MIBIdx
17. MIBIdx_Cnt
18. Port
19. Flags

Notes:

- Fields marked with the ( ) character are left blank during compilation.

- When an existing database file is selected as the target file, the MIB Compiler saves the contents of fields 4, 11, 12, and 13 from the original file. Once the new database is created, the saved data is restored to fields 4, 11, 12, and 13 in the new file.

Reports

Following a successful compilation, the **MIB Compiler** generates **two** reports, which provide pertinent information about your newly created MIB database:

1. New MIBs Report

This file lists all **NEW** entries that were not present in the original database file before it was re-compiled.

Name: database name + .new

Location: directory where database files reside.

Example: If your target database is called **MIBDB**, the name of this file would be **MIBDB.NEW**

2. Deleted MIBs Report

This file lists MIB names that were in the original database file but were NOT included in the newly re-compiled database.

Name: database name + .del

Location: directory where database files reside.

Example: If your target database is called **MIBDB**, the name of this file would be **MIBDB.NEW**

Compiler Messages

Messages generated by the **MIB Compiler** during compilation are categorized into the following groups:

1. Informational Messages

Informational messages, identified by the letter **I** preceding the message number (**I**036), describe each step of the compilation process. In the event that a compile fails due to a severe error,

informational messages can be used to identify the source of the problem.

2. Messages

These particular messages, identified by the letter **M** preceding the message number (**M**407), describe some of the more complex steps of the compilation process. They also appear in the **Status Bar** of the **MIB Compiler Dialog Box** and in popup message boxes.

3. Warnings Messages

Warning messages, identified by the letter **W** preceding the message number (W104), alert the user to any unusual event during compilation. They will not cause the **MIB Compiler** to abort compilation.

4. Error Messages

Error messages, identified by the letter **E** preceding the message number (**E**201), list and describe severe irregularities detected by the **MIB Compiler** during compilation. Since severe compilation errors can cause the target database to contain corrupted and erroneous data, it is advisable that you thoroughly analyze all error messages to properly identify the source of the problem.

5. Title Messages

Title lines, identified by the letter **T** preceding the message number (**T**305), are displayed at specific intervals and serve to inform the user that a particular report has been generated. A title line is also displayed when compilation is first initiated. Title lines can not be toggled on or off - they are always displayed.

Note: You can enable or disable the display of **Informational**, **Warning**, and **Error** messages by configuring the appropriate options in the **Setup Options Dialog Box**. You cannot, however, disable compiler messages identified by a greater than sign following the message number (T305**>**); such messages are always displayed. Refer to **Options!** in the **Command Bar** section earlier in this chapter for further information.

Integrating Unsupported Devices

The **MIB Compiler** enables the **IQ View Foundation** to integrate network devices unsupported by a GUI (thus presently unmanageable by the **IQ View Foundation**). Integration is a three-step process involving the following:

I. Redefining an unsupported network device as an **SNMP Custom Node**

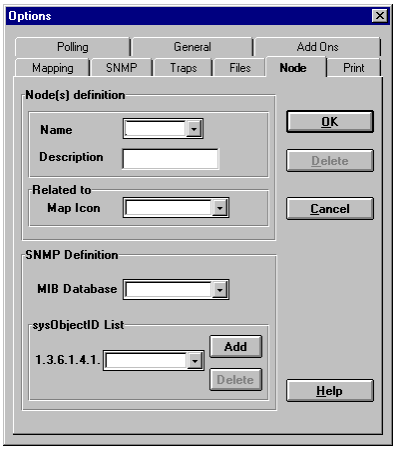
II. Adding an **SNMP Custom Node** to your map

III. Configuring your **SNMP Custom Node**

Redefining Unsupported Devices

You may redefine your network device unsupported by a GUI as an **SNMP Custom Node** as follows:

1. Highlight the **Tools Menu**.
2. Select the **Options** option to open the **Options Dialog Box**:



3. Select the **Node** folder.

4. Compile the MIB source files specific to your device using the **MIB Compiler**.
5. Enter the symbolic node name in the field name (such as **ACME**). This field will appear in the **Add** submenus (accessed from the **Edit Menu**) and in the **SNMP** node drag and drop palette (accessed from the **View Menu**) once you complete your **SNMP Custom Node** definition and restart the **IQ View Foundation**.
6. Enter the node description.
7. Select a map icon related to the node. Generic icons such as the *repeater* or *router* should be used.
8. Select the MIB database that was previously compiled (such as **ACME.DB**).
9. Enter the **sysObjectID** of the **ACME SNMP** device. This field will be required later on by the **Node Browser** to correctly identify the device and to assign the proper MIB database. If the device is not properly identified, the **Node Browser** will then assign the generic MIB-II database to the device. Refer to your device documentation or your device MIB source to get this **sysObjectID**.
10. Click on **OK** to save your information.

Note: You must restart the **IQ View Foundation** in order for the nodes to appear in the **Add** submenus.

Adding an SNMP Custom Node to your Map

Refer to the ***Adding Objects*** subsection in **Chapter 6** entitled **Building Maps** for instructions on adding an **SNMP Custom Node** to your network map through the **Edit Menu** or the **View Menu**.

Configuring your SNMP Custom Node

The **Node Browser** can be used to view and modify the **MIB Object Values** of an **SNMP Custom Node** so that you may manage your (unsupported) device according to your need, as follows.

1. Refer to the **Accessing the Node Browser** section for instructions on opening the **Node Browser Dialog Box**.
2. Select the desired MIB Group from the **Group** pick list.
3. Double-click on the value cell of the **MIB Object** that you wish to modify.

Notes:

- Double-clicking on a cell containing a green-colored **MIB Object Value** opens a **Name Dialog Box**.

- Double-clicking on a cell containing a blue-colored **MIB Object Value** opens a **Syntax Dialog Box**.

4. Make your modifications as required; click on **OK**.
5. Click on **Set** in the **Node Browser Dialog Box**.

Note: Refer to **The Node Browser** section for further information on the functionality of the **Node Browser**.

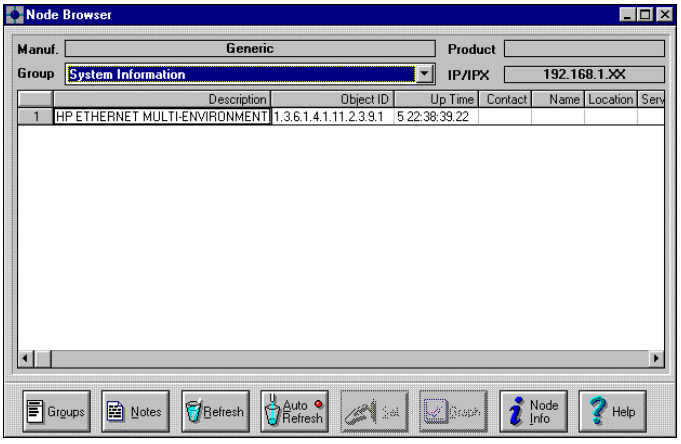
The Node Browser

Using a previously compiled MIB database, the **Node Browser** is an application allowing you to view statistics and configure variables of an SNMP device which does not have a GUI to support it. For further information, refer to **Add-Ons** in the **Advanced Customization** section in **Chapter 4** entitled **Using the IQ View Foundation**.

Accessing the Node Browser

Important: The **Node Browser** is only available to the **Mouse Right Button Menu** of a **Connectivity Icon** identified by its **Icon Description** as an **SNMP Node**; this indicates the corresponding node is unmanaged by the **IQ View Foundation**.

- Right-click and select **Node Browser** to open the **Node Browser Dialog Box**:



Identifying an SNMP Node

1. Identify an *SNMP Node* by clicking on the **Node Info Button** to open the **Node Information Dialog Box** containing descriptive information on the unknown connectivity device; refer to the **Node Information Dialog Box** section later in this chapter for more information.
2. Reflect the above identification of the connectivity device in its **Icon Description** by modifying it through the **Attributes Dialog Box**; refer to this section for more information.

The Node Browser Dialog Box

The **Node Browser Dialog Box** is divided into three sections:

I. **Basic Product Information**;
II. **View** which includes **Header, Cell**, and **Syntax**;
III. **Button Bar**.

I. Basic Product Information

Located in the uppermost section of the **Node Browser Dialog Box**, **Basic Product Information** includes the following:

- Dialog Box Name
- Manufacturer Name
- Product Name
- A Group field displaying the selected MIB Group. The **IQ View Foundation** displays the corresponding (previously assigned) MIB Objects in the Headers of the Data Table and their values in the adjacent cells of the Data Table.
- The Product IP/IPX Address

Notes:

- Should you wish to display the MIB Object Values of another group, click on the **Group** field down arrow and highlight the desired MIB Group from the pick list. The Data Table will then display the corresponding MIB Object Values.

- Refer to the ***Default MIB Group*** section in the chapter entitled **MIB Grouping** of the **IQ View** manual for more information on selecting a new default MIB Group.

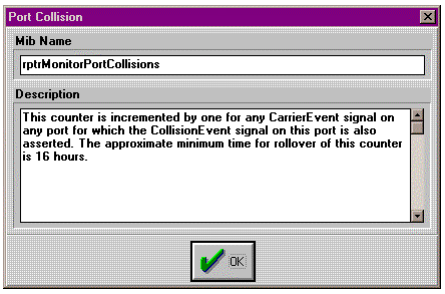
II. View

Located below **Basic Product Information**, the **Node Browser View** contains rows and columns displaying information about the selected or default MIB Group. Use the scroll bars to display additional rows or columns that the default size of the **Node Browser Dialog Box** keeps from view. If you wish to expand the size of a column to more fully display the data inside, click and drag the column's partition lines.

The **Node Browser View** displays MIB Object Values according to **Header**, **Cell**, and **Syntax**:

Header

Node Browser Headers run along the top of the Data Table and display each MIB Object determined by the MIB Group in the **Group** field (but previously assigned by you in the **MIB Grouping** and **MIB Selection Dialog Boxes**. Refer to the **MIB Grouping** and **MIB Selection** chapters in the **IQ View** manual for more information on creating/modifying/deleting MIB Objects and MIB Groups). In some instances, the name of the MIB Object has been abbreviated; double-click on its **Header** to open a dialog box containing the full MIB Object name and its description.


Port Collision
Mib Name
rptrMonitorPortCollisions
Description
This counter is incremented by one for any CarrierEvent signal on any port for which the CollisionEvent signal on this port is also asserted. The approximate minimum time for rollover of this counter is 16 hours.
OK

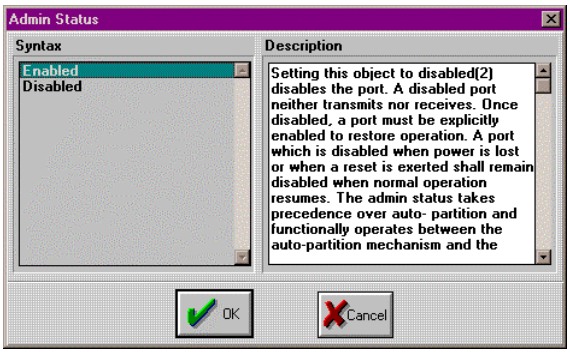
Note: If a MIB Group has no defined MIB Objects, it cannot display any MIB Object **Headers**, but will still display the name of the MIB Group in the **Group** field.

Cell

Below each **Node Browser** MIB Object **Header**, **Cells** contain corresponding MIB Object Values. A modifiable MIB Object value is either colored green or blue and takes its value by default or from having been previously selected by you. MIB Object Values colored in black cannot be modified.

Syntax

You may modify a blue-colored MIB Object value by double-clicking on it to open a **Syntax List Box** which includes a syntax pick list and its corresponding description**.** Use the scroll bar to view the entire description. Highlight the desired **Syntax**, then click on **OK** or **Cancel** accordingly.


Admin Status
Syntax
Description
Enabled
Disabled
Setting this object to disabled(2) disables the port. A disabled port neither transmits nor receives. Once disabled, a port must be explicitly enabled to restore operation. A port which is disabled when power is lost or when a reset is exerted shall remain disabled when normal operation resumes. The admin status takes precedence over auto- partition and functionally operates between the auto-partition mechanism and the
OK
Cancel

Double-clicking on a cell containing a green-colored MIB Object value opens a corresponding dialog box with a description of the MIB Object and a field for entering the new modified value. Click on **OK** or **Cancel** accordingly.

Note: To record the new selection in the node, click on the **Set Button** from the **Node Browser Dialog Box**.

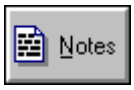
III. Button Bar

The **Button Bar** lies at the bottom of the **Node Browser Dialog Box** and includes the following eight buttons:

Clicking on the **Groups Button** allows you to create a new group of MIB Objects, or copy, modify, delete or view a previously defined group, using the **MIB Grouping** and **MIB Selection Dialog Boxes**.

Notes:

- You may also use the **Groups Button** to change the default MIB Group displayed in the **Node Browser View**. Refer to the chapter on **MIB Grouping** in the **IQ View** manual for more information.
- MIB Groups apply to a product, not to specific ports. A newly created MIB Group therefore becomes available to all ports belonging to the managed product.

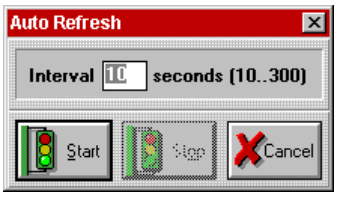


Click on **Notes** to open a dialog box into which you may enter descriptive information.

Click on **Refresh** to update the Data Table once. Instead of refreshing the entire **View**, you may choose to update specific cells only; refer to the **Selecting Cells or a Block of Cells** section later in this chapter.

Note: In order to decrease management traffic, the **IQ View Foundation** does not continuously refresh the Data Table. Click instead on the **Auto Refresh Button** to refresh the Data Table at a specified interval.

Select **Auto Refresh** to automatically refresh the status of the Data Table you are currently managing at a specific interval. This opens the **Auto Refresh Dialog Box** where the **Start** or **Stop Button** names and their corresponding green or red lights indicate the Auto Refresh status.



Enter a refresh interval between 10 and 300 seconds. The default value is 10 unless you have previously set a refresh interval for another **View**: it will then take that value by default. You may click on **Start** after you enter your value.

The shaded button name indicates the action currently taking effect; the other prominent button names indicate actions that are ready to be put into effect.

START: Until the **Start Button** is activated, the **Stop Button** is shaded in gray, indicating that the **Auto Refresh** function is presently inactive (stopped). Click on **Start** to activate **Auto Refresh**.

STOP: Until the **Stop Button** is activated, the **Start Button** is shaded in gray, indicating that the **Auto Refresh** function is presently active (started). Click on **Stop** to stop the **Auto Refresh** function.

CANCEL: Click on **Cancel** to close the **Auto Refresh Dialog Box** without setting a refresh interval.

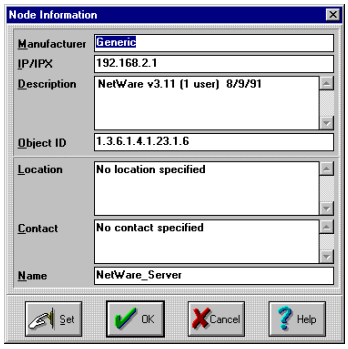
Notes:

- **Auto Refresh** stops functioning when (a) the **MIB Grouping Dialog Box** is opened, (b) the **Notes Button** is activated and (c) the GUI window is minimized.
- Instead of automatically refreshing the entire **View**, you may choose to update specific cells only; refer to the **Selecting Cells(s) or a Block of Cells** section later in this chapter.

Click on **Set** to put into effect any changes you wish to make to the node.

Clicking on the **Graph Button** displays a graphic window allowing you to view selected MIB Object Values in graph or chart format. The **Graphic Application** can only therefore display MIB Objects that are even counters or a gauge. You may select all or only a few MIB Objects to graph from those displayed in the Data Table; click on the numbered column on the left side of the Data Table to specify. You may also make more specific selections; refer to the **Selecting Cells(s) or a Block of Cells** section later in this chapter. If you make no selection, all MIB Objects in the Data Table will be graphed; refer to the **Graphic Application** chapter in the **IQ View** manual for more information.

NODE INFORMATION: Clicking on **Node Info** opens the **Node Information Dialog Box** containing information on the currently selected node.



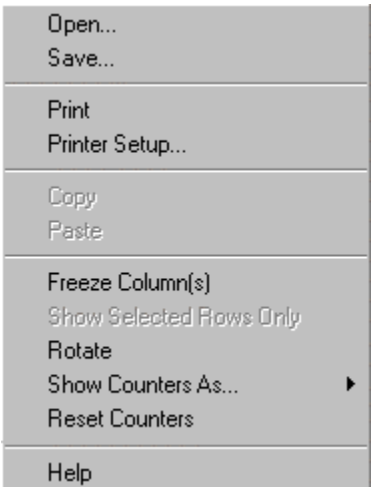
This dialog box is divided into two distinct sections. The upper section contains information about the device manufacturer, the IP Address of the device, a general description of the device itself, and the Object ID; these sections are Read-Only and cannot be edited. The lower section contains the location of the device, the contact, and the contact name; these sections can be edited by positioning the cursor inside the proper section and typing in the correct information.

- Click on **Set** to set your information and keep the dialog box open; click on **Cancel** to close the dialog box without "setting" any information; click on **Help** to obtain context-sensitive help on the **Node Information Dialog Box**.

Click on **Help** to obtain context-sensitive help on the **Node Browser Dialog Box**.

Node Browser Mouse Right Button Menu

The **Node Browser Mouse Right Button Menu** offers increased functionality to the **Node Browser Dialog Box**. The functionality of the **Node Browser Mouse Right Button Menu** is itself made possible by first **Selecting Cell(s) or a Block of Cells**; refer to this section later in this chapter. Once a particular selection is made, click the right mouse button on the **Node Browser Dialog Box** to display a floating menu with the following options:



Options (such as **Copy**, **Paste**, **Show Selected Row Only**, and **Reset Counters**) appear in gray to indicate that a condition required to activate the option has not been met. Refer to the specific options for more information.

Open

This option allows you to open a previously saved file and copy the contents of that file into the Data Table at the current cursor position.

Notes:

- You must position the cursor on the correct line inside the Data Table.

- You can only open files which contain MIB Objects that are READ/WRITE.

Save

This option allows you to save to a file the complete **View** or only those MIB Objects that you have selected. Selecting **Save** opens a dialog box in which you may enter a path and a filename. You can use the **Open** function to retrieve a file containing saved data at a later time.

Notes:

- **Save** works only with MIB Objects that are READ/WRITE. If you select **Save** after selecting a READ-ONLY MIB Object, a message will appear indicating that the MIB Object is not "writable".

- By saving the complete **View** of READ/WRITE MIB Objects, you are saving the MIB Objects of a particular manufacturer's module (the module's configuration).

Print

This option allows you to send the complete **View** to the default Windows printer.

Note: You cannot select specific MIB Objects or cells to print.

Printer Setup

This option allows you to access printer options for the active printer driver. The dialog box displayed is pertinent to your default printer.

Copy

This option allows you to copy the contents of the selected cells from the Data Table onto the clipboard. You can only copy cells which contain MIB Objects that are READ/WRITE.

Note: At least one cell must be selected before using the **Copy** option.

Paste

This option allows you to insert the contents of the clipboard at the current cursor location into the Data Table. Only those cells corresponding to the copied cells are pasted over. The **Copy** function must have been previously selected to activate the **Paste** function.

Freeze Column(s):

With this option, you may keep column(s) from disappearing from view while you scroll to the right of the Data Table. Simply select the rightmost column that you wish to keep in view and activate the **Freeze Column** option; all column(s) to the left of your selection will be frozen. A check mark appears to the left of **Freeze Column** on the **Mouse Right Button Menu**, indicating the option is currently active. The **Freeze Column** option remains inactive until you select the column(s) you wish to freeze. Select **Freeze Column** again to deactivate this function.

Show Selected Row(s) Only

This option allows you to display only those row(s) in the Data Table that have been specifically selected. For this option to be enabled, at least one row must be selected. This option hides, but does not delete the unselected row(s). Refer to the **Selecting Cell(s) or a Block of Cells** section later in this chapter for directions on selecting row(s).

Rotate

By default, the port numbers of the **Node Browser Dialog Box** run from the top to the bottom of the Data Table and the MIB Object **Headers** run along the top; the **Rotate** option allows you to reverse the **Header** and port number display.

Show Counters As...

This option allows you to display your counter MIB Object Values in three modes: Absolute, Delta, and Accumulated.

- Selecting **Absolute** displays your unmodified counters in black.

- Selecting **Delta** displays the difference between the currently refreshed and previously refreshed counters; **Delta** counters are displayed in magenta.
- Selecting **Accumulated** resets your counters to zero. Refreshing an **Accumulated** counter displays an increment equaling the difference between the value of the counter when refreshed and when reset; **Accumulated** counters are displayed in aqua.

Notes:

- The **Show Counters As...** option is operational only for counter MIB Objects; otherwise, this option is grayed-out.

- Although the default mode is Absolute**,** the default checkmarked mode is **Delta:** refreshing your MIB Object Values without making a mode selection will give you their **Delta** values**;** to obtain updated values in **Absolute** mode you must first select **Absolute** and then click on **Refresh!**.

- Although only one mode may be selected at any given time, clicking on **Refresh** affects *each* mode: when selected, each mode's counter value display will be correspondingly altered in the Data Table.

Reset Counters

Selecting **Reset Counters** sets your counters back to zero, automatically displaying their values in the **Accumulated** mode of the **Show Counters As...** option; **Reset Counters** are displayed in aqua.

Transfer to RMON/Threshold

Transfer to RMON/Threshold: This option allows you to save the selected cells in a default file to be used by the **RMON** and **Threshold** applications. The name of the default file is Threshol.dat and it is saved in your < the **IQ View Foundation** >\appls directory. For more information on the **Threshold Utility**, refer to its chapter in the **IQ View** manual.

Help

Select **Help** to obtain context-sensitive help on the different options of the **Node Browser Mouse Right Button Menu**.

Selecting Cell(s) or a Block of Cells

The following is a description of how you can select cell(s) or a block of cells in the **Node Browser View** using the mouse, the Ctrl key and/or the SHIFT key:

Single Cell

To select only one cell, simply position the cursor in that cell.

Non-Continuous Cells

To select a non-continuous group of cells, click on all the desired cells while holding the Ctrl key.

Row

To select a row, click on the corresponding row number in the numbered column of the Data Table.

Block of Rows

You can select more than one row by holding down the left mouse button and dragging the mouse over all the desired row numbers in the numbered column. You may also select a continuous block of rows by positioning the cursor on the first desired row and then holding down the SHIFT key and clicking the left mouse button on the last desired row. This selects all rows between the first and last rows inclusively.

Column

To select a column, click on the corresponding MIB Object **Header**.

Block of Columns

You can select more than one column by holding down the left mouse button and dragging the mouse over all desired MIB Object column Headers. You may also select a continuous block of columns by selecting the first desired column and then holding down the

SHIFT key and clicking the left mouse button on the last desired column. This selects all columns between the first and last columns inclusively.

Chapter 13
The IQ View Configurator

The **IQ View Configurator** allows users to sample specific equipment and collects data on selected MIB objects in the first step towards **Trend Analysis**. Once data has been collected or sampled from the selected equipment, this information is retrieved and stored by the **Universal Repository** to be used as data for the **Trend Analysis** application.

Note: **IQ Sampling**, which collects data from selected equipment, is not to be confused with **Network** or **Node Polling**, which tests for connectivity, available on the **IQ View Foundation**.

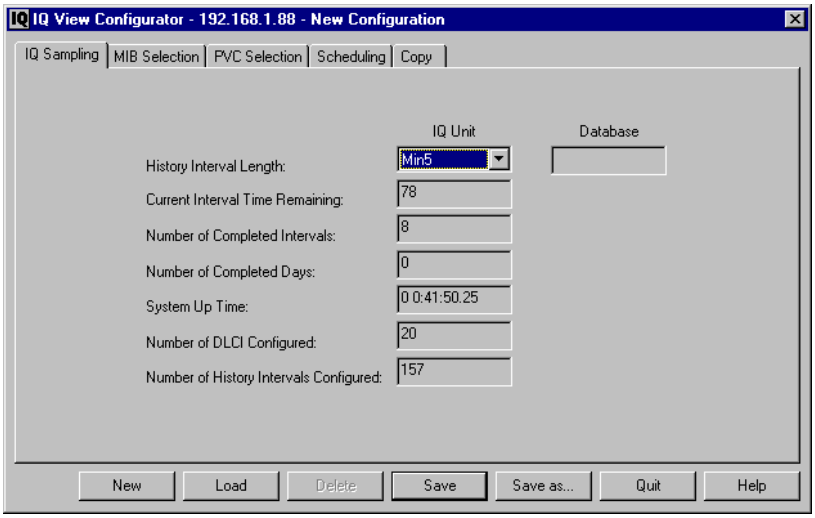
Chapter structure

This chapter is structured according to the following topics and subtopics:

- **The IQ View Configurator Dialog Box**
  - **Caption Bar**
  - **Button Bar**
  - **Folders**
  - **Configure New Groups**
  - **Load/Enable/Disable Groups**
- **The IQ View Scheduler**
  - **The Scheduled Events Dialog Box**

The IQ View Configurator Dialog Box

Access the **IQ View Configurator** by selecting the desired node icon on the **IQ View Foundation** map and clicking the mouse right button. Select the **Scheduler** option from the floating menu. This opens the **IQ View Configurator Dialog Box**:



The Caption Bar

The **Caption Bar** of the **IQ View Configurator Dialog Box** displays:

- The **IQ View** Icon
- The name of the application
- The IP address of the selected node icon from the **IQ View Foundation** map
- The name of the current configuration
- The status of the configuration (**Enabled** or **Disabled**)

Button Bar

The **Button Bar** in the **IQ View Configurator Dialog Box** offers the following options to manipulate new and existing groups:

- Configure a **New** sampling group (see **Configure New Groups** later in this chapter for more information).
- **Load** a previously configured group (see **Load/Enable/Disable Groups** later in this chapter for further information).
- **Delete** or disable a previously selected group (see **Load/Enable/Disable Groups** later in this chapter for further information).
- **Save** or enable a selected configuration (see **Load/Enable/Disable Groups** later in this chapter for further information).
- **Save as** a different name.
- **Quit** the **IQ View Configurator Dialog Box** and terminate the the **IQ View Configurator**.
- **Help** offers assistance in using the **IQ View Configurator**.

Folders

The **IQ View Configurator Dialog Box** contains five folders to enable or configure groups for data collection.

- IQ Sampling (which is the default folder)
- MIB Selection
- PVC Selection
- Scheduling
- Copy

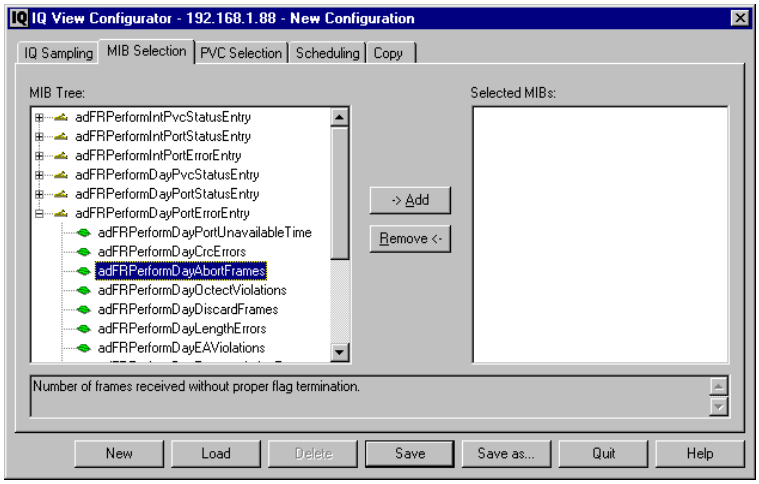
IQ Sampling

IQ Sampling displays an overall history of the status of a configured group that is highlighted in the **Caption Bar**. This history is valid only when the **IQ View Configurator** is opened.

- **HISTORY INTERVAL LENGTH** is a modifiable interval of time between sampling events in which data from a particular device is collected and stored in an internal table ready for data collection by the **IQ View Scheduler**.
- **CURRENT INTERVAL TIME REMAINING** displays the number of seconds until the next interval is completed.
- **NUMBER OF COMPLETED INTERVALS** displays the number of completed sampling events.
- **NUMBER OF COMPLETED DAYS** displays the total days that this equipment has been active.
- **SYSTEM UP TIME** displays the time that this equipment has been up or enabled.
- **NUMBER OF DLCI** (Data Line Control Interface)**CONFIGURED** sets the maximum number of PVC's supported by the **IQ** unit.
- **NUMBER OF HISTORY INTERVALS CONFIGURED** defines the number of history intervals kept in storage.

MIB Selection

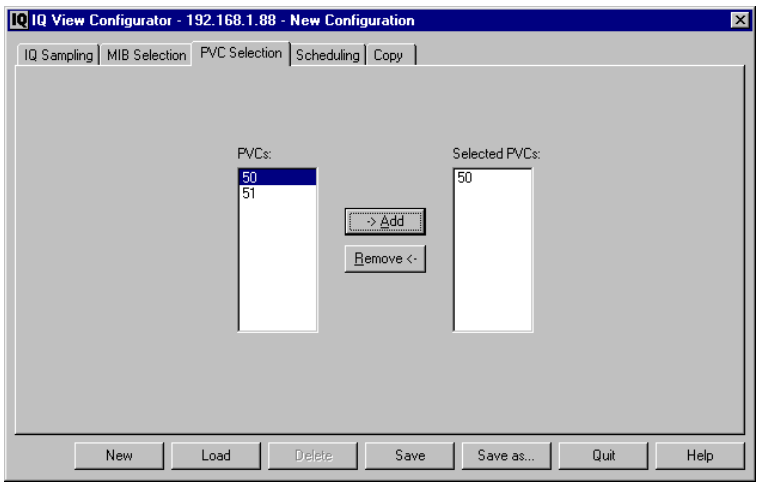
The second folder available in the **IQ View Configurator Dialog Box** is called **MIB Selection**. This allows you to select specific equipment for a particular configuration when gathering MIB statistics.



The **MIB Tree** section in the **MIB Selection** folder contains MIBs from the selected node icon on your **IQ View Foundation** map displayed in a hierarchal structure. MIB descriptions are displayed in the **Description** box located above the **Button Bar**. Highlight specific MIB Objects and use the **Add** and **Remove Buttons** to select MIBs when configuring or modifying groups.

PVC Selection

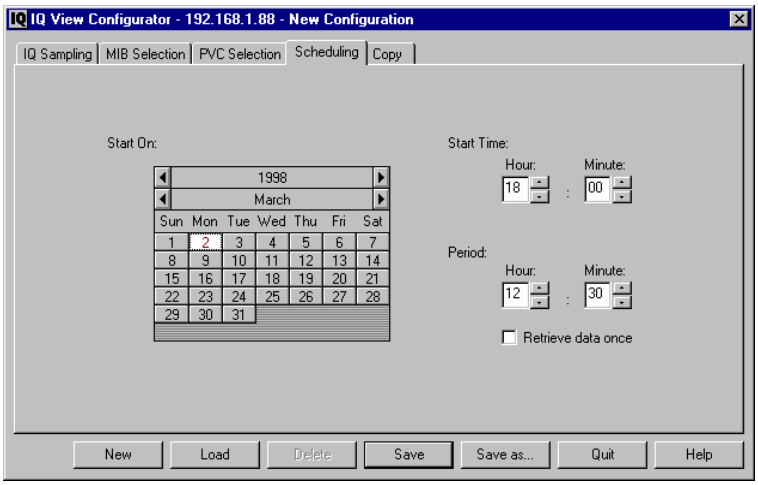
Select the specific **PVC** corresponding to the MIB convention.



PVCs (**Permanent Virtual Circuits**) are unique channel numbers assigned to permanent circuits. Use the **Add** and **Remove Buttons** to select the **PVCs** to be included in the data collection.

Scheduling

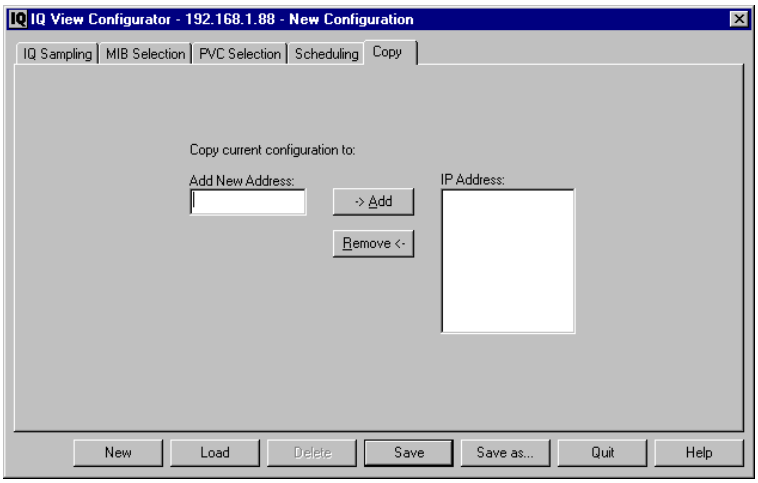
The **Scheduling** folder allows you to select the time and sampling or collection interval which collects data stored in the internal tables. Events scheduled in this tab are displayed in the **Scheduled Events Dialog Box** of the **IQ View Scheduler**.



Select the **Start Time** and sampling interval for a selected configuration from the pick list. Specific start dates may also be selected from the **Calendar** as well as selecting the **Retrieve data once** option which will not perform repeat sampling or data collection.

Copy

The **Copy** folder allows you to copy the current configuration to new node icons found on the **IQ View Foundation** Map.



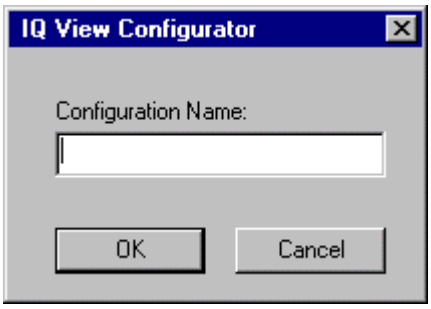
Copy configurations by typing the new IP address and clicking on **Add**, or remove the configuration by highlighting the IP address and clicking on **Remove**.

Configure New Groups

Each group you configure contains device specific MIB information that you wish to collect for **Trend Analysis**.

To configure a new group, do the following

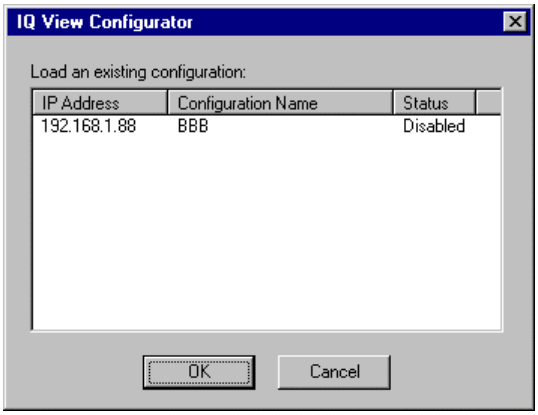
1. Click on **New** in the **Button Bar** of the **IQ View Configurator Dialog Box**.
2. Select **History Interval Length** from the **IQ Sampling** folder.
3. Select the desired MIBs from the **MIB Tree** in the **MIB Selection** folder.
4. Select **PVC** from the **PVC Selection** folder.
5. Select **Scheduling Parameters** from the **Scheduling** folder.
6. Name your new configuration by clicking on **Save As** to open the following dialog box:



7. Click on **OK** to accept the name for your new group.

Load/Enable/Disable Groups

Click on the **Load Button** from the **Button Bar** of the **IQ View Configurator Dialog Box** to load existing groups for scheduling or modification.



All previously configured groups are displayed in the **Load Dialog Box**.

1. Highlight the group to load from the pick list and click on **OK**.
2. To enable the selected group, click on **Save** or **Save As** in the **Button Bar** of the **IQ View Configurator Dialog Box**.
3. To disable the group, click on **Disable** in the **Button Bar** of the **IQ View Configurator Dialog Box**.

When disabling a selected group, be sure to click on **Disable** and not on **Delete** unless that was your intention. Deleted groups are

unrecoverable unless they had previously been copied to another device.

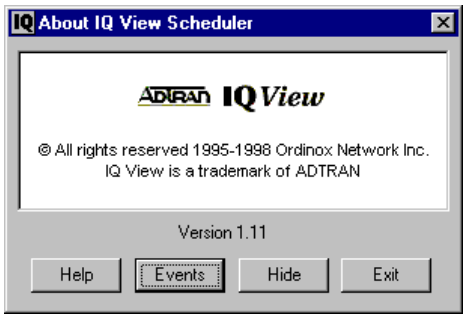
Using the Template Group

The Template Group(s) shown in the **Load Configurator Dialog Box** contain a read-only pre-selected MIB grouping.

1. Select the template group from the **IQView Configurator Dialog Box**.
2. Select the PVCs for your new group from the **PVC** folder.
3. Select the scheduling time in the **Data and Time Dialog Box** from the **Scheduling** folder.
4. Save your newly configured group by clicking on the **Save As Button**.

The IQ View Scheduler

Once groups have been configured to collect the required data, you may view scheduled data collection by activating the **IQ View Scheduler**; simply double-click on the **IQ View** icon (IQ) located in the ***System Tray*** on your ***Windows 95*** **Taskbar**. This opens the **IQ View Configurator About Box** displaying registration and copyright information.

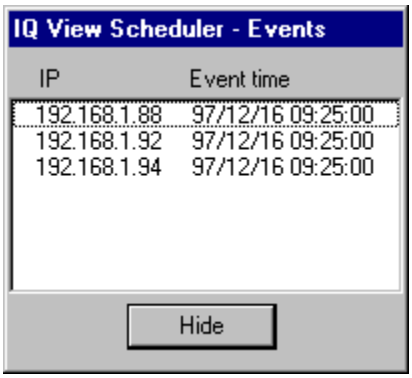


The **About Box** also has four buttons available: click on **Help** for assistance, **Events** to open **The Scheduled Events Dialog Box**, **Hide** to minimize the window or **Exit** to close the **About Box**.

Important: Since, as mentioned earlier, **IQ View Configurator** is only the first step towards **Trend Analysis**, stagger the scheduling of the **IQ View Configurator**, **Universal Repository** and **Trend Analysis** in order that each application may complete before the next is scheduled.

The Scheduled Events Dialog Box

The **Scheduled Events Dialog Box** displays the IP address and the time at which sampling will be activated.



To remove an event from the **Scheduler** you must disable the configuration (see **Load/Enable/Disable Groups** earlier in this chapter for more information).

Only one configuration per device may be scheduled at any one time.

If you wish to test a unit response, double-click a scheduled event to sample immediately. This does not affect the scheduled samplng event.

Chapter 14

The Universal Repository

The **Universal Repository** contains a permanent database which stores information retrieved from the **IQ View Configurator**. This information is then used by **Trend Analysis** to report or graph network trends.

Access the **Universal Repository** from your ***Desktop***.

Chapter structure

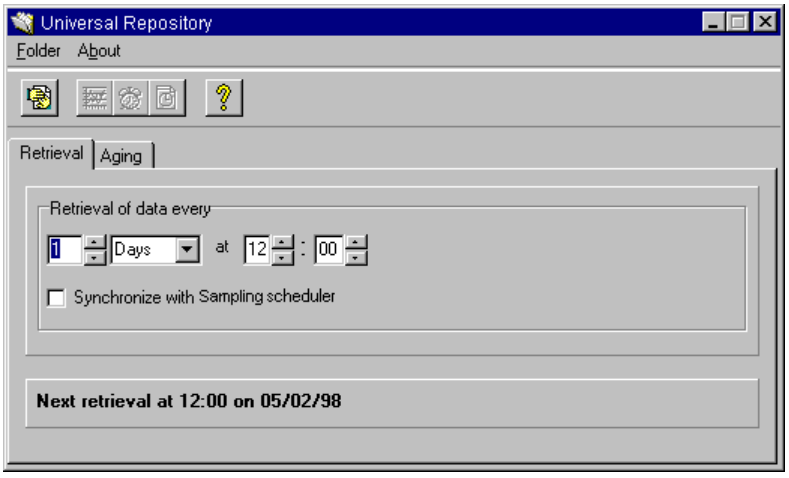
This chapter is structured according to the following topics and subtopics:

- **The Universal Repository Dialog Box**
  - **Data Retrieval**
  - **Aging**
- **Baselining**
  - **Configure New Baselining Rules**
  - **Assign Baselining Rules**

The Universal Repository Dialog Box

The **Universal Repository Dialog Box** offers two functions:

- **RETRIEVAL** which extracts data from the **IQ View Configurator** server at scheduled intervals.
- **AGING** which maintains the **Universal Repository** database.



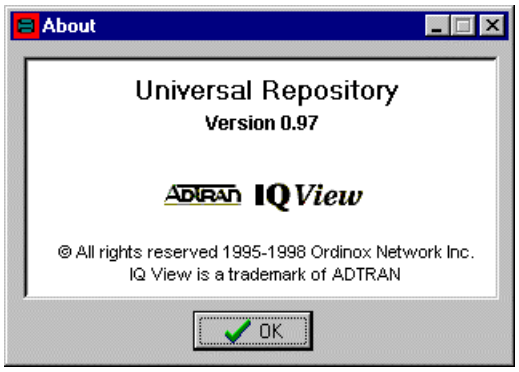
There are two options available on the **Command Bar** of the **Universal Repository Dialog Box** – **Folder** and **About**.

The **Folder Menu** displays two options to manipulate the **Universal Repository Dialog Box**.

HIDE – to minimize the **Universal Repository Dialog Box**

CLOSE – to terminate **Universal Repository**

The **About Menu** offers **HELP** for the **Universal Repository** as well as an **ABOUT Box** which displays registration and version number of the **Universal Repository**.



The Toolbar

The **Toolbar** of the **Universal Repository Dialog Box** offers options to:

HIDE the **Universal Repository Dialog Box**.

Configure new **BASELINING RULES**.

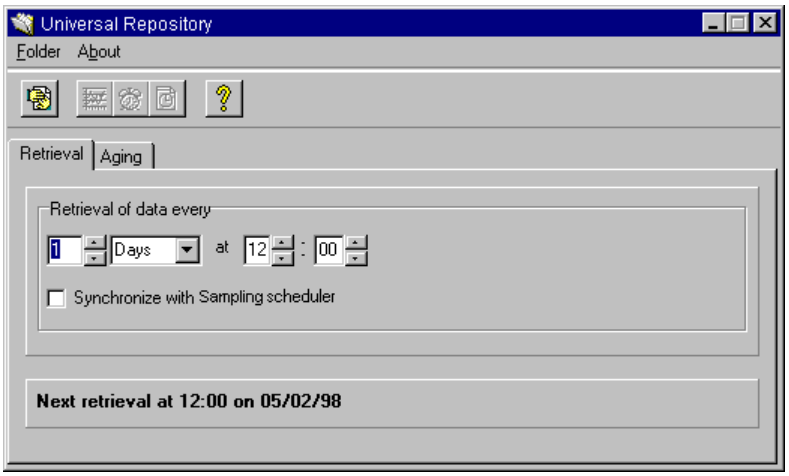
Assign **BASELINING RULES FOR THRESHOLD DATA** which applies specific rules to alarm object.

Assign **BASELINING RULES FOR HISTORICAL DATA** which applies specific rules to objects from the **IQ View Configurator**.

Access **HELP** information which provides assistance when using the **Universal Repository**.

The Retrieval Folder

The **Universal Repository** allows you to retrieve data from the **IQ View Configurator** on a regular basis to ensure the most recent data is available for **Trend Analysis**.



The **Retrieval Folder**, which is the default folder of the **Universal Repository** displays the parameters you have configured for **Data Retrieval** as well as the next schedule retrieval time.

Configure the retrieval schedule by using the pick list under the caption "**Retrieval of data every**". The scheduled retrieval time is displayed at the bottom of the **Universal Repository Dialog Box** and may be modified at any time.

Note: The **Universal Repository** application must be open in order for data retrieval to take place. Minimize the **Universal Repository Dialog Box** by selecting **Hide** from the **File Menu** or using the **Hide Button** on the **Toolbar**.

Select "**Synchronize with sampling scheduler**" to schedule data retrieval automatically after the **IQ View Configurator** has completed its schedule. If this is not selected, use the pick lists available in the retrieval section of the **Universal Repository Dialog Box** to schedule a retrieval time.

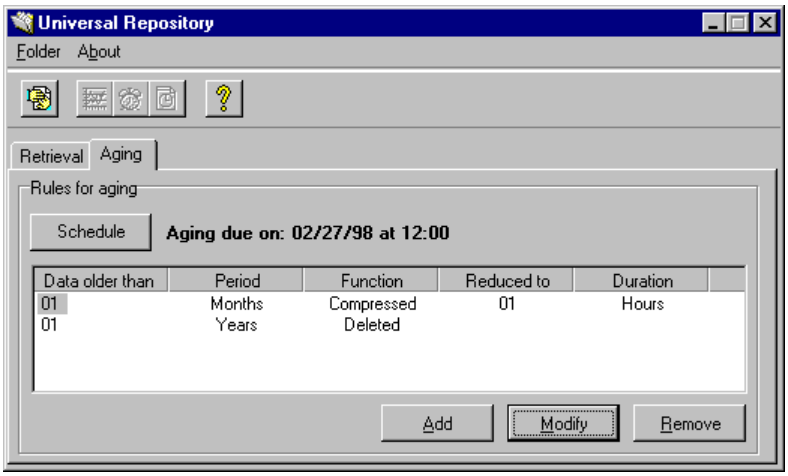
Important: Since the **Universal Repository** is the second step towards **Trend Analysis**, stagger the scheduling of the **IQ View Configurator**, **Universal Repository** and **Trend Analysis** in order that each application may complete before the next is scheduled.

The Aging Folder

The **Aging Folder** of the **Universal Repository Dialog Box** is accessed by clicking on the **Aging** tab and allows you to set rules for database maintenance. **Aging** will delete data or compress cumulative data into an average based on a selected variable using the "**Reduced to**" and "**Using the**" functions in the **Aging Dialog Box**. **Aging Rules** that have been created are displayed in the **Aging Data Table**.

Use the **Aging** option to:

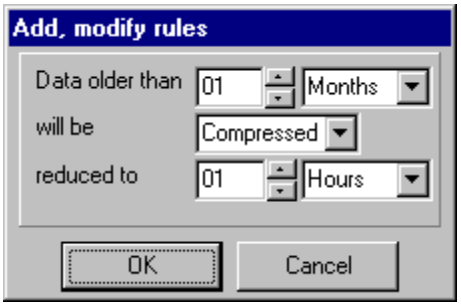
- Maintain the size of the database at a manageable level.
- Organize data for optimum space and usage.
- Increase response time and minimize resources when searching for data.



- Use the **SCHEDULE BUTTON** schedule the **Aging** process.
- Use the **ADD BUTTON** to create **Aging Rules**.
- Modify existing **Aging Rules** by highlighting the first field of the aging rule and clicking on the **MODIFY BUTTON.**
- Delete **Aging Rules** by highlighting the first field of the rule and clicking on the **REMOVE BUTTON.**

Creating and Modifying Aging Rules

Click on the **Add Button** or select an **Aging Rule** and click on the **Modify Button** in the **Universal Repository Dialog Box** to open the **Aging Dialog Box**.



1. Configure new **Aging Rules** or modify existing **Aging Rules** through the pick lists available in the **Aging Dialog Box.**

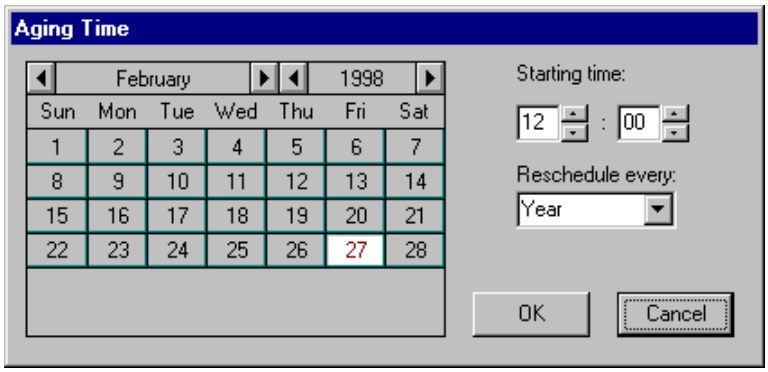
- **DATA OLDER THAN** allows you to select the data interval such as day, month or year.
- **WILL BE** offers the option of deleting or compressing the data.
- **REDUCED TO** is only available when compressing data and allows you to select a data interval to compress such as hours, days, months or years.

2. Click on **OK** to add the **Aging Rule** or modify the existing **Aging Rule** and return to the **Universal Repository Dialog Box**.

Note: There is no limit to the amount of rules you may add to **Aging**.

Scheduling Aging Rules

Click on **Schedule** in the **Aging Folder** of the **Universal Repository Dialog Box** to open the **Aging Time Dialog Box**.



1. Select the date and time you wish to schedule for **Aging** by using the pick lists available in the **Aging Time Dialog Box** or use the calendar by clicking on the required date. If you select a time and date that has currently passed, the **Universal Repository** will schedule retrieval at the next available date.
2. If you wish to schedule retrieval at a fixed time interval, select an option from the **Reschedule every** pick list. You may select retrieval daily, weekly, monthly or yearly.
3. Click on **OK** to accept the scheduled **Aging** time. The scheduled time will appear in the **Aging** folder of the **Universal Repository Dialog Box**.

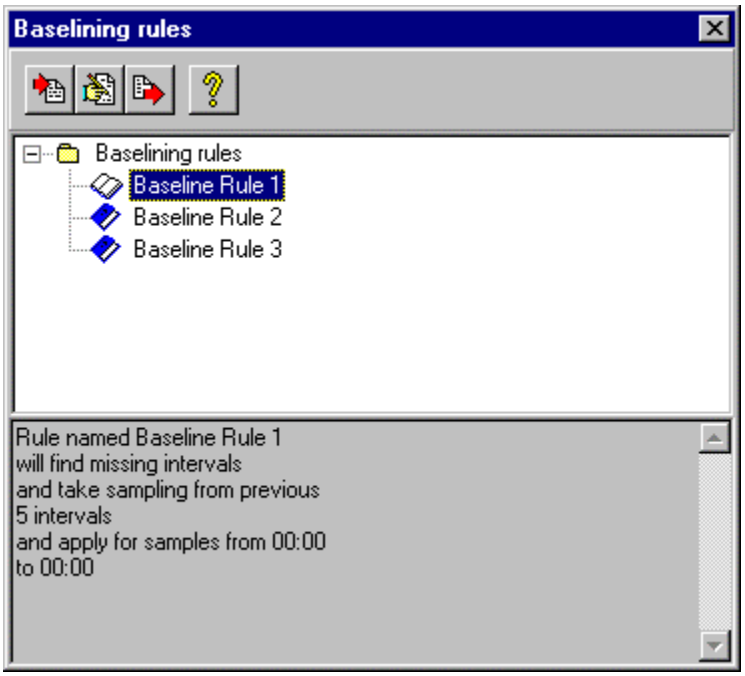
Baselining

The **Baselining** feature of the **Universal Repository** allows you to define standards that will be used as comparison points when performing **Trend Analysis**. Each **Baselining Rule** is first defined through the **Baselining Rules Dialog Box** and then assigned to specific equipment through the **Assign Dialog Boxes**.

Note: One rule may be assigned to many objects but each object may have only one rule.

Configure New Baselining Rules

Open the **Baselining Rules Dialog Box** by clicking on the **Baselining Rules Button** on the **Universal Repository Toolbar**.



The **Baselining Rules Dialog Box** displays previously configured **Baseline Rules** displayed in a hierarchical structure. Highlighted **Baseline Rules** are displayed in the bottom section of the **Baselining Rules Dialog Box.**

The Toolbar

Use the **Toolbar** to create, modify and delete baselining rules.

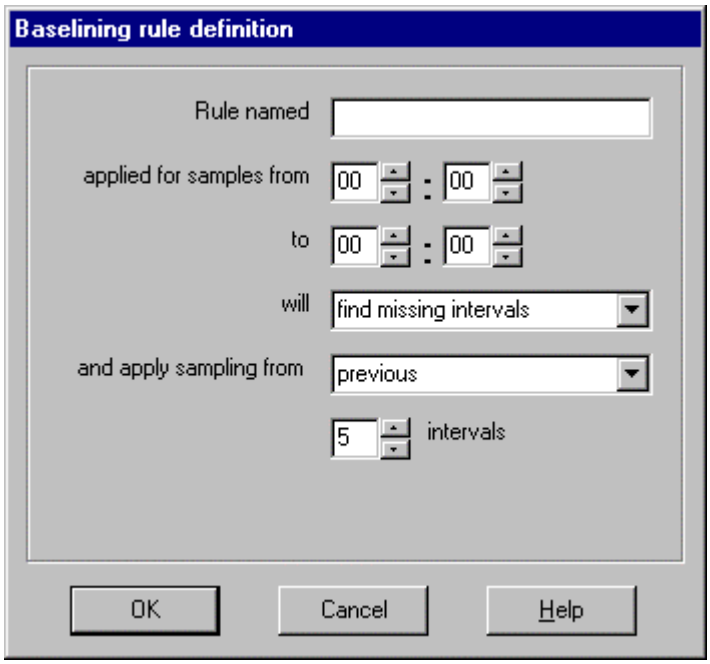
CREATE NEW Baselining Rules.

MODIFY highlighted **Baselining Rules**.

DELETE highlighted **Baselining Rules**.

HELP offers assistance in using the **Baselining Rules** function.

Select **Create New** to open the **Baselining Rule Definition Dialog Box**.



1. Configure **Baselining Rules** through the pick lists available in the **Baselining Rule Definition Dialog Box**.

Each **Baselining Rules** is configured so that data collected by the **Universal Repository** during a specified period will perform functions for selected intervals.

- **RULE NAMED** prompts you to create a name for this **Baselining Rules**.

Note: You must supply a name to a baselining rule in order to continue.

- Use the pick lists **APPLIED FOR SAMPLES FROM** and **TO** when selecting times for your baseline sample.

- The **WILL** pick list allows you to select **find missing intervals**, **find peaks** and **average records**. **Find peaks** also prompts for a percentage through a pick list.

- **AND APPLY SAMPLING FROM** prompts to select the type of sampling: **previous**, **following** or **previous and following**.

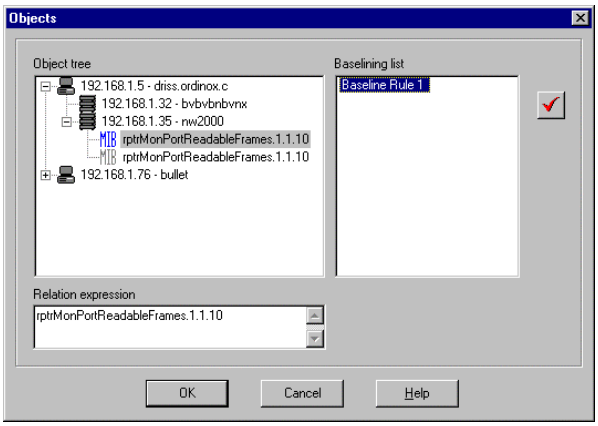
- The **INTERVALS** pick list allows you to select the number of intervals from 0 to 100.

2. Click on **OK** to add the **Baselining Rules** and return to the **Baselining Rule Definition Dialog Box**.

Note: There is no limit to the amount of **Baselining Rules** you may create.

Assign Baselining Rules

Once your **Baselining Rules** have been configured, assign them to objects collected from the **IQ View Configurator**.



Select one of the **Assign Buttons** to open the **Objects Dialog Box**. Each **Assign button** (**Assigning Baselining Rules for Threshold data** and **Assigning Baselining Rules for Historical data**) will contain different objects.

The **Objects Dialog Box** displays all objects from the **IQ View Configurator** that are configured for either Historical or Threshold and all the names of the previously configured **Baselining Rules**.

Select the device from the **Object tree** of the **Objects Dialog Box** and then select the **Baselining Rules** you wish to apply to that device.

Click on the ✓**Button** to assign the rule. Click on **OK** to return to **Universal Repository Dialog Box**.

Chapter 15
Trend Analysis

Trend Analysis is a report generating application available with **IQ View** which allows network managers the ability to monitor network performance. The **Trend Analysis** package offers performance and statistical reports that you can create or modify to:

- Monitor bandwidth utilization
- View the percentage of resources available and resources used
- View trends in resource management
- View traffic in particular segments and links.

Data used for **Trend Analysis** is collected from the **IQ View Configurator** and stored in a permanent database through the **Universal Repository**. Reports that are generated using this data include a set of pre-designed reports using fixed MIB variables that can be used or modified according to your requirements. These reports, as well as ones that you create can be printed or displayed in tabular or graphic formats.

Document Conventions

The **Supplemental Functions** section of this chapter alphabetically describes step-by-step instructions as well as further detailed information on subjects covered in this chapter.

Chapter structure

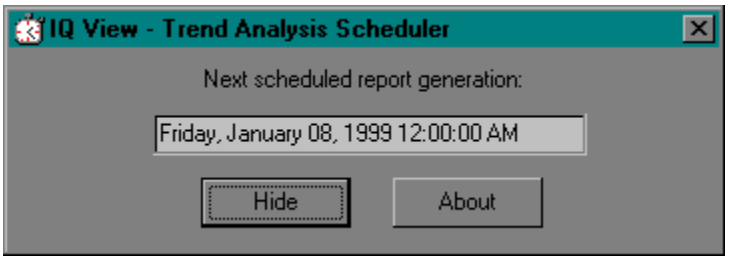
This chapter is structured according to the following topics and subtopics:

- **Trend Analysis Scheduler**
- **Trend Analysis**
  - **Creating and Modifying Reports**
- **2D Chart Control Properties**
  - **Control Folder - 2D Chart Control Properties**
  - **Axes Folder - 2D Chart Control Properties (select for X and Y axis)**
  - **Chart Groups Folder - 2D Chart Control Properties (select group)**
  - **Chart Styles Folder - 2D Chart Control Properties (select group and style)**
  - **Titles Folder - 2D Chart Control Properties (select header or footer)**
  - **Legend Folder - 2D Chart Control Properties**
  - **Chart Area Folder - 2D Chart Control Properties**
  - **Plot Area Folder - 2D Chart Control Properties**
  - **View 3D Folder - 2D Chart Control Properties**
- **Supplemental Functions**
  - **Adding Descriptive Text and Forms To Your Report**
  - **Add Reports**
  - **Expression Wizard**
  - **Form Bar**
  - **Group Definitions**
  - **Label Definitions**
  - **Remove Reports**
  - **Text Bar**
  - **Using the Date and Time Caption Dialog Box**
  - **Label Formats**

Trend Analysis Scheduler

The **Trend Analysis Scheduler** displays all scheduled reports and is enabled when you activate **Trend Analysis**. It is represented by a *Watch Face* icon located in the ***System Tray*** on your ***Windows 95*** **Taskbar**.

Double-click on the **Trend Analysis Scheduler** icon to view the **Scheduler**. Once enabled, the **Scheduler** will remain active even after you have terminated **Trend Analysis**. You may disable the **Scheduler** by opening the **Scheduler Dialog Box** and clicking on the **Close Window Button**.



Note: Closing the **Trend Analysis Scheduler** will suspend all Report generation; at this point, you must restart **Trend Analysis** to enable scheduling.

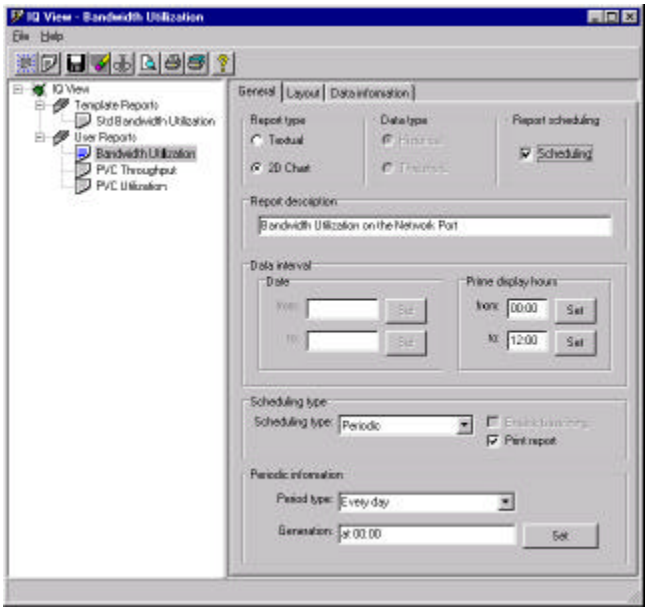
Important: Since **Trend Analysis** is the last step of data collection and trend reporting, stagger the scheduling of **Trend Analysis**, the **Universal Repository** and the **IQ View Configurator** in order that each application may be completed before the next is scheduled.

Trend Analysis

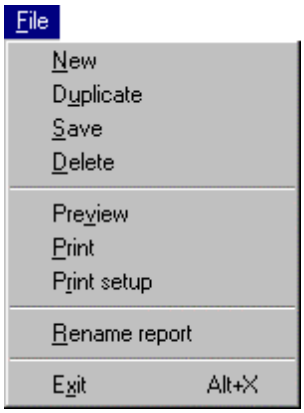
Access **Trend Analysis** from your ***Desktop*** to open the **Trend Analysis Dialog Box**. The **Trend Analysis Dialog Box** is divided into two sections: on the left, the hierarchical structure of the report generating system and on the right, the report properties for the selected report.

There are two types of reports available:

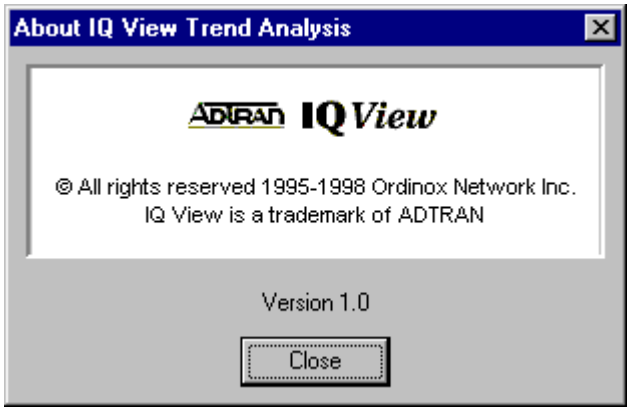
- **Template Reports** that may be copied but not modified
- **User Reports** that may be copied *and* modified.



The **Trend Analysis Dialog Box** includes a **Command Bar** and a **Toolbar** to facilitate the use of report generation. The **File Menu** on the **Command Bar** and the **Toolbar Menu** offer the same functions with the exception of the **Exit** option available in the **File Menu**.



Also available on the **Command Bar** is the **Help Menu** which offers context-sensitive help on **Trend Analysis** as well as **About** which opens the **About Dialog Box**.


About IQ View Trend Analysis
ADTRAN IQ View
© All rights reserved 1995-1998 Ordinox Network Inc.
IQ View is a trademark of ADTRAN
Version 1.0
Close

The **About Dialog Box** displays the current version number of the **Trend Analysis** application along with its copyright information.

The Command Bar

The **Command Bar** of the **Trend Analysis Dialog Box** offers one step buttons to generate and manipulate reports.

CREATE NEW REPORT will prompt you for a name for your new report.

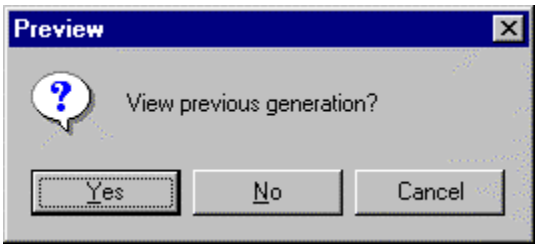
DUPLICATE copies a report so you can make modifications without overwriting the original report.

SAVE CURRENT REPORT saves the opened file.

DELETE CURRENT REPORT deletes the currently opened or selected report.

RENAME the currently selected report.

PREVIEW CURRENT REPORT offers you the option of displaying the current report or the previous generation.



Either selection opens the **Report Viewer Dialog Box** (refer to **Report Viewer** in the **Supplemental Functions** section for more information on viewing a report.

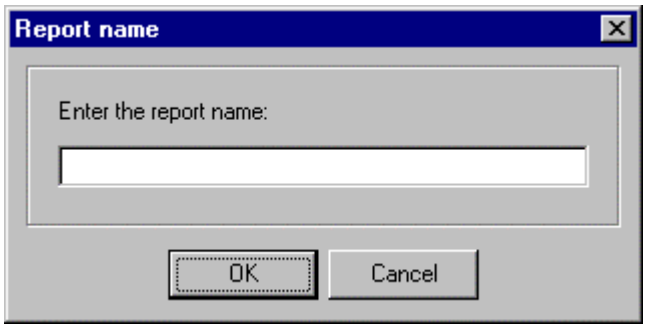
PRINT the displayed report.

PRINT SETUP configures a local or network printer.

HELP offers assistance in using **Trend Analysis**.

Creating and Modifying Reports

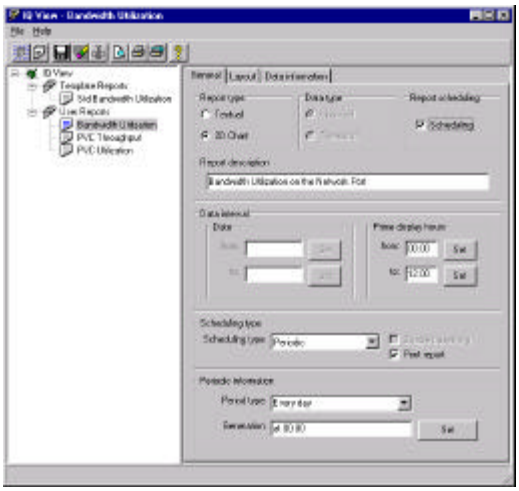
Click on the **Report** icon you wish to schedule or modify from the hierarchical structure on the left side of the **Trend Analysis Dialog Box**. If you wish to design a new report click on the **Create New Report Button** in the **Toolbar**, or select **New** from the **File Menu**; you will be prompted to type a report name in the **Report Name Dialog Box**. Click on **OK** once you have entered a name for your new report.



Once you select your report, the right side of the **Trend Analysis Dialog Box** displays three tab folders: **General**, **Layout** and **Data Information**.

General

The **General** folder defines the scheduling parameters for your report.



- **REPORT TYPE** can be **Textual** or a **2D Chart** which displays a graphical representation of data on two axes.

- **DATA TYPE** can be **Historical**, which takes all the information from the data collector without any restrictions or **Threshold**, which takes information that was collected and flagged as defined in the report.

- **REPORT SCHEDULING** allows you to schedule the selected report. If you select this, two other sections are activated in the **General** folder: **Scheduling type** and **Day to Day** or **Periodic information**.

- **REPORT DESCRIPTION** is a description you wish to give this report.

- **DATA INTERVAL** defines the beginning and ending interval of valid data. Add new dates by clicking on **Set** to open the **Date and Time Caption Dialog Box** (for more information refer to **Using the Date and Time Caption Dialog Box** in the **Supplemental Functions** section later in this chapter). Data interval is not an option when scheduling periodic reports.

- **PRIME DISPLAY HOURS** lets you select the time range of data you want to view for every day in your report. If you wish to see a full day, select 00:00 to 23:59.

- **SCHEDULING TYPE** allows you to choose two methods of scheduling your reports as well as report printing. Your selection here defines the last section of the **General** folder.

    1. **Periodic** schedules a report at a specified interval of time. You may also select baselining collection for this option only (refer to **Chapter 14** entitled **The Universal Repository** for more information on baselining).

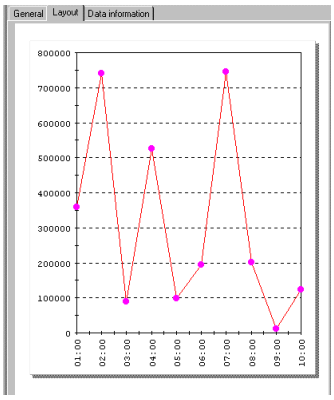
    2. The **Day to Day** option schedules a report daily.

- **PERIODIC INFORMATION** or **DAY TO DAY INFORMATION** displays the report generation period as well as the scheduled time of generation (to add or remove reports from the **Scheduler** refer to **Add Reports** and **Remove Reports** from the **Supplemental Functions** section).

Layout

The **Layout** folder gives a preview of the printed report for predefined reports. It also provides a *Grid Map* to lay out new reports.

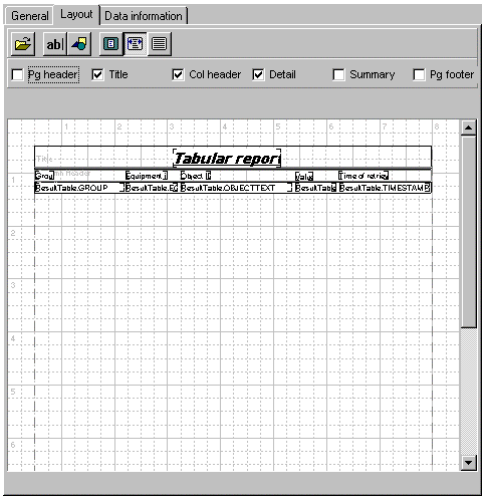
2D Reports



The **Layout** folder previews pre-designed reports which can be manipulated to your requirements using the right mouse button (see **2D Chart Control Properties** for information on how to manipulate the appearance of your reports).

Textual Reports

The **Layout** folder for textual reports displays a grid map to help you produce your printed report.



LOAD REPORT opens a previously saved report.

TEXT ICON is selected to add text to your report when adding headings, footers, details, titles and summaries.

FORM ICON is selected to add forms to your textual report such as squares, circles and lines.

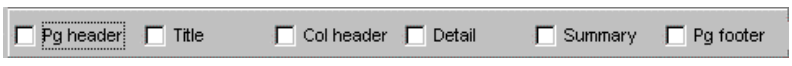
FULL PAGE VIEW gives an overall view of your finished report.

PAGE VIEW gives a more detailed view by enlarging the report to the default window size.

ACTUAL VIEW displays the report in actual size for the most detail.

Below the **Toolbar**, the **Layout** window offers descriptive text fields to add to your report such as:

- Page header
- Title
- Column header
- Detail
- Summary
- Page Footer

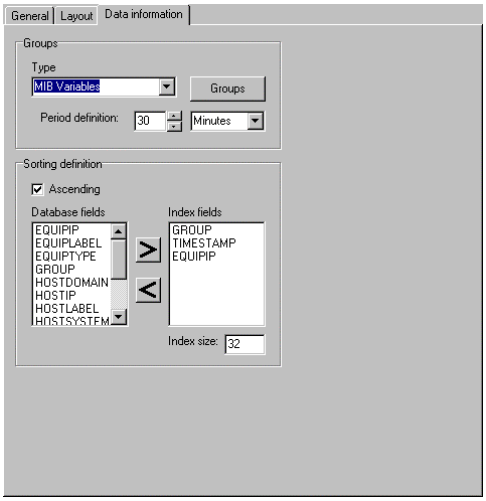


Refer to **Adding Descriptive Text and Forms** in the **Supplemental Functions** section for more information on text fields and forms.

Data Information

The **Data Information** folder defines data collected from the **Universal Repository** database that is to be used as input for your report.

Textual Reports



TYPE offers you a pick list to select the type of items you wish to graph from the **Universal Repository** database (for more information on Groups refer to **Supplemental Functions** on **Group Definition**). These items can be MIB variables or equipment.

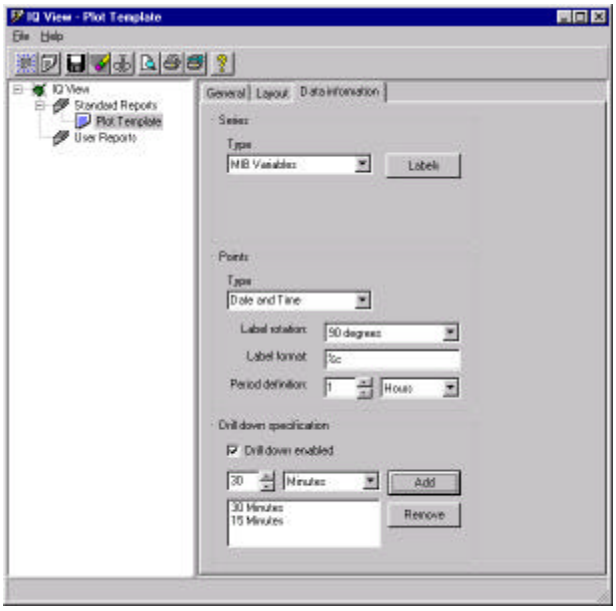
PERIOD DEFINITION is the interval of time from which information is selected as data points for your report. The default is five minutes.

SORTING DEFINITION allows you to sort the data presented in your report. Use the **<** and **>** arrows to select items from the database to be used as indexes.

Note: Double-clicking on an item will automatically move it from one section to another.

INDEX SIZE calculates the selected indexes and their size. The maximum allowed size for the database file is 100 bytes.

2D Chart Reports



TYPE offers you a pick list to select the type of items you wish to graph from the **Universal Repository** database (for more information on **Labels** refer to **Supplemental Functions** on **Label Definition**). These items can be MIB variables or device.

POINTS are the data values selected from the pick list to be used in your report. Use the pick list to select a data value such as Data and Time.

LABEL ROTATION rotates the label on the X axis.

LABEL FORMAT is a special format code for date and time (see the **Label Formats** at the end of this chapter for a list of valid label formats).

PERIOD DEFINITION defines the time interval to be incurred by the point data value.

DRILL DOWN SPECIFICATION enables you to define smaller period definitions other than the period definition entered in the **Points** section for date and time definition. Enable **Drill down** and then select from the available list or create a new time from the pick list.

2D Chart Control Properties

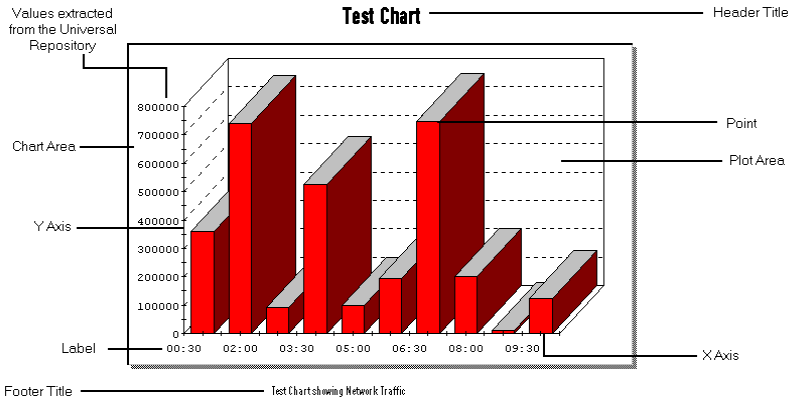
The **2D Chart Control Properties Dialog Box** enables you to customize the properties of any chart. As properties are edited, changes are immediately applied to the chart and displayed so that you can quickly see how a change will affect your report.

Each folder in the **2D Chart Control Properties Dialog Box** affects a specific section or element of the report and is displayed in its own table.

Note: Once you have changed a property, the only way to undo the change is to change the property back to its previous value.

Access **2D Chart Control Properties** by right-clicking on a pre-designed report in the **Layout** folder.

A 2D Chart can be viewed in a three-dimensional format as shown here.



Control Folder - 2D Chart Control Properties

Tab	Option	Result
General	IsBatched	Batches all property changes until the **Apply Button** is selected.
	IsDoubleBuffered	A Graphic technique to reduce the amount of “flashing” perceived when a chart changes.
	Load	Loads a previously saved file.
Border	Type	Highlights important information; makes the report look more attractive.
	Width	
Interior	Background Color	Enhance a report’s visual impact by using color names, RGB values or a color chooser.
	Foreground Color	
Image	File	Adds Windows Bitmap or Metafile to the background of this element.
	Layout	Pick list offer options on how an added image will be displayed.
	Is Embedded	Includes specific image with report. Turn off if you want the report to look for image in a specified location when running the report.

Axes Folder - 2D Chart Control Properties (select for X and Y axis)

Tab	Option	Result
Title	Text	Adds a title to a selected axis. You cannot add an axis title to polar, radar or filled radar charts.
	Title Rot	Rotates title on vertical axis.
Grid	Spacing	Customizes grid spacing for an axis. IsStyleDefault allows chart to space grid automatically.
Grid Style	Pattern	Customizes line pattern, thickness and color of gridlines.
	Width	
	Color	
Font	Description	Selects font and size for each axis.
Polar/ Radar	Origin Base	Where along the Y-axis the X-axis is placed.

Chart Groups Folder - 2D Chart Control Properties (select group)

Tab	Option	Result
General	Chart Type	Sets the chart type for the second ChartGroup.
	Drawing Order	Defines which ChartGroup is drawn first.

Chart Styles Folder - 2D Chart Control Properties (select group and style)

Tab	Option	Result
Fill Style	Pattern	Specifies the color and pattern inside area, bar, pie and filled radar charts.
	Color	
Line Style	Pattern	Defines the line style for the object. Specifies the color, pattern and thickness of lines in plots.
	Width	
	Color	
Symbol Style	Shape	Specifies the color, shape and size of points in a plot.
	Size	
	Color	

Titles Folder - 2D Chart Control Properties (select header or footer)

Tab	Option	Result
General	Adjust	Specifies whether to center, left justify or right justify a multi-line title.
Label	Text	Adds, changes or removes text for a title. To enter multiple lines of text, press **Enter** between each line.
Location	Left	Customizes the location of the title. When IsDefault is selected, the header is centered over the plot area and the footer is centered below the plot area.

	Top	
Border	Type	Highlights important information, makes the chart look more attractive.
	Width	
Interior	Background Color	Enhance a report's visual impact by using color names, RGB values or a color chooser.
	Foreground Color	
Font	Description	Selects font and size for title.
Image	File	Adds Windows Bitmap or Metafile to the background of this element.
	Layout	Pick list offers options on how an added image will be displayed.
	Is Embedded	Includes specific image with report. Turn off if you want the report to look for image in a specified location when running the report.

Legend Folder - 2D Chart Control Properties

Tab	Option	Result
General	Anchor	Specifies the position of the legend relative to the Plot Area.
	Orientation	Lays out the legend horizontally or vertically.
Location	Top	Finalize the positioning of the legend. When IsDefault is selected, the chart automatically positions the legend.
	Left	
Border	Type	Highlights important information, makes the chart look more attractive.
	Width	

Interior	Background Color	Enhance a report's visual impact by using color names, RGB values or a color chooser.
	Foreground Color	

Font	Description	Selects font and size for legend.

Image	File	Adds Windows Bitmap or Metafile to the background of this element.
	Layout	Pick list offers options on how an added image will be displayed.
	Is Embedded	Includes specific image with report. Turn off if you want the report to look for image in a specified location when running the report.

Chart Area Folder - 2D Chart Control Properties

Tab	Option	Result
General	IsHorizontal	Switches orientation of the X and Y axes.
	IsShowingOutlines	Turns the outlines on or off. By default, an outline is drawn around each series for Area, Bar, Stacking Bar and Pie charts.
	AngleUnit	Specifies the angle units for Polar, Radar and Filled Radar charts.
Location	Left	Specifies the number of pixels from the edge of the chart to the edge of the left or top of the chart element. IsDefault allows the chart to automatically position the element.
	Top	

	Width	Specifies the width and height of the Chart Area. IsDefault automatically sizes the Chart Area.
	Right	

Border	Type	Highlights important information, makes the chart look more attractive.
	Width	

Interior	Background Color	Enhance a report's visual impact by using color names, RGB values or a color chooser.
	Foreground Color	

Image	File	Adds Windows Bitmap or Metafile to the background of this element.
	Layout	Pick list offers options on how an added image will be displayed.
	Is Embedded	Includes specific image with report. Turn off if you want the report to look for image in a specified location when running the report.

Plot Area Folder - 2D Chart Control Properties

Folder	Option	Result
General	Top	Control the margins (areas between the edges of the Chart Area and Plot Area). Values set for these remain fixed until you change it or set its IsDefault property.
	Bottom	
	Left	
	Right	

Interior	Background Color	Enhance a report's visual impact by using color names, RGB values or a color chooser.
	Foreground Color	

Image	File	Adds Windows Bitmap or Metafile to the background of this element.
	Layout	Pick list offers options on how an added image will be displayed.
	Is Embedded	Includes specific image with report. Turn off if you want the report to look for image in a specified location when running the report.

View 3D Folder - 2D Chart Control Properties

Tab	Option	Result
General	Depth	Sets the visual depth of a 3D effect. The maximum value is 500.
	Elevation	Sets the distance above the X axis for the 3D effect. This can be –45 to 45 degrees.
	Rotation	Sets the distance right of the Y axis for the 3D effect. This cannot be higher than 45 or lower than –45.
	Shading	Sets the shading method for the 3D areas of the chart.

Supplemental Functions

Adding Descriptive Text and Forms To Your Report

To produce graphs and reports with a high visual impact, you may occaisonally want to enclose your text in a form such as a circle or square. Create each separately and then use the Drag and Drop feature to move one on top of the other.

1. Click on the descriptive text option you would like to add to your report.
2. Select the **Text** icon from the **Map Layout Toolbar**.
3. Click anywhere in the field defined in your report to open the **Text Bar**.
4. Enter text in the bar and press **Enter** or click on the **OK Button** to place the text.
5. If you wish to enclose your text in a form, select the **Form** Icon from the **Map Layout Toolbar**.
6. Click anywhere in the field defined in your report to open the **Form Bar**.
7. Close the **Text Bar** by clicking anywhere on report except a text or form field. Your text has now been added to your report.

Note: Text and forms can be moved around your report by using the ***Windows*** *Drag and Drop* feature.

Add Reports

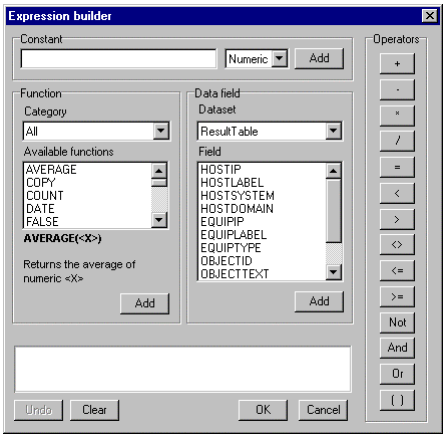
1. Click on **Add** to open the **Date and Time Caption Dialog Box**.
2. Select the starting date and time for your reports. The date for report generation must be in the range given for Data interval.
3. Click on **OK** to accept the report scheduling time.

Expression Wizard

The **Expression Wizard Dialog Box**, which is the graphing software used in **Trend Analysis**, allows you to build mathematical expressions if you wish further analysis of statistical data from **Trend Analysis**. Simple expressions may be created directly on the text bar; more complicated expressions may need the ***Expression***

Wizard™ which displays a variety of options that may be used in any order to create your expressions. As you build expressions, view them in the bottom window in the **Expression Builder Dialog Box**.

Click on the **Expression Wizard Button** to open the **Expression Builder Dialog Box**:



- **CONSTANT** refers to the numeric or string value you would like to add to your expression. Once you have selected your **Constant** and defined it using the pick list (numeric or string), click on the **Add Button** to include it in your expression.
- **OPERATORS** adds an operator to your expression.
- **FUNCTIONS** displays multiple categories with different functions for you to select.
- **DATA FIELD** displays fields derived from the **Universal Repository** database.

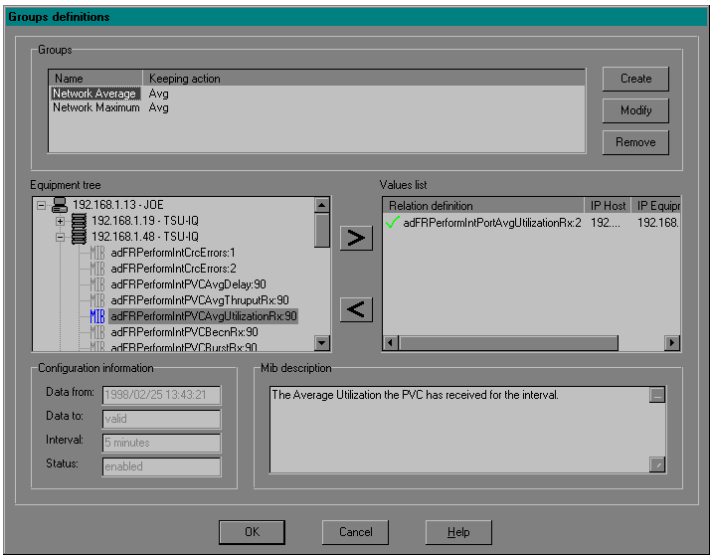
Form Bar

The **Form Bar** allows you to add pre-designed forms to your report for added visual impact. See **Adding Descriptive Text and Forms To Your Report** earlier in this chapter for further information.

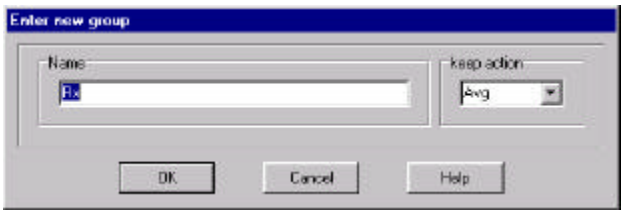
Group Definitions

The **Group Definition Dialog Box** for textual reports allows you to define groups from equipment and MIB variables found in the database. It is divided into five sections:

- Groups
- Equipment Tree
- Values List
- Configuration information
- MIB Description



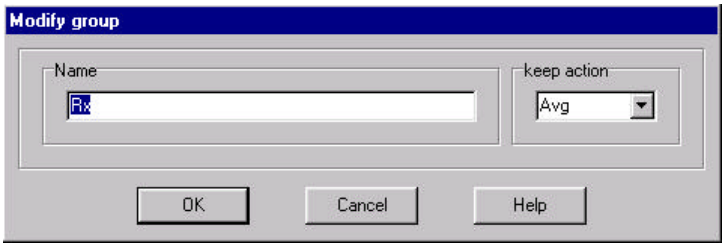
The **Groups** section includes the current list of groups you have created for the **Data Information** folder. **Keeping Action** defines the type of data used in the report you are creating. Use the **Keeping Action** as a visual reminder of the report type.



- Select **Create** to open the **Enter New Group Dialog Box**.

1. Enter the name of the new group.
2. Select a **keeping action** from the pick list. A **keeping action** allows you to define variables such as Average, Minimum or Summary. It allows you to see, at a glance, the type of group you have defined.
3. Click on **OK** to accept the new group and close the **Enter New Group Dialog Box**.

- Select **Modify** to open the **Modify Group Dialog Box**.



1. Enter the new name you wish to give to the group.
2. Select a **keeping action** from the pick list. A **keeping action** allows you to define variable such as Average, Minimum or Summary. It allows you to see, at a quick glance, the type of group you have defined.
3. Click on **OK** to accept the modification and close the **Rename Group Dialog Box.**

- Select **Remove** to delete a selected group.

The **Equipment Tree** section defines all equipment found in the **Universal Repository** database.

The **Values List** includes the actual items that are defined by the Groups. Add items to the **Values List** by first selecting the Group and then highlighting the item in the **Equipment Tree** and clicking on the **>** button. Remove items from the **Values List** by clicking on **<**.

Note: Double - clicking on an item will automatically move it from the **Equipment Tree** to the **Values List** and vice versa.

Configuration information is a read – only section describing the polling configuration of the MIB.

- **DATA FROM** describes the date and time that the MIB was configured.
- **DATA TO** defines the date and time that the MIB was deleted. If the MIB is still available, it will be displayed here as **VALID**.
- **INTERVAL** defines the polling interval.
- **STATUS** defines whether the selected MIB is disabled or enabled. Enable MIBs through the **IQ View Configurator**.

MIB Description in the **Group Definition Dialog Box** is another read – only section that displays a complete description of the selected MIB.

Keeping Action

The keeping action specifies the action to be used on the data for the period specified on the **Data Information Dialog Box**.

Avg **Avg** defines the average period for the report.

If the period is defined for one hour, the data samples within the hour of 6:00 (6:00 to 6:55) will be averaged together to create a data value point at 6:00 in the report.

Min Selecting the **Min** (minimum) for the keeping action will find the minimum value within the period defined for the report.

If the period is defined for one hour, the data samples within the hour of 6:00 (6:00 to 6:55) will be searched for the minimum value and a data point with that value at 6:00 will be displayed in the report.

Max Selecting **Max** (maximum) for the keeping action will find the maximum value within the period defined for the report.

If the period is defined for one hour, the data samples within the hour of 6:00 (from 6:00 to 6:55) will be searched for the maximum value and a data point with that value at 6:00 will be displayed in the report.

Sum **Sum** will add together the values within the period defined for the report.

If the period is defined for one hour, the data samples within the hour (6:00 to 6:55) will be summed together to create a value and a data point with that value at 6:00 will be displayed in the report.

First **First** for the keeping action will present for the first value found within the period for the report.

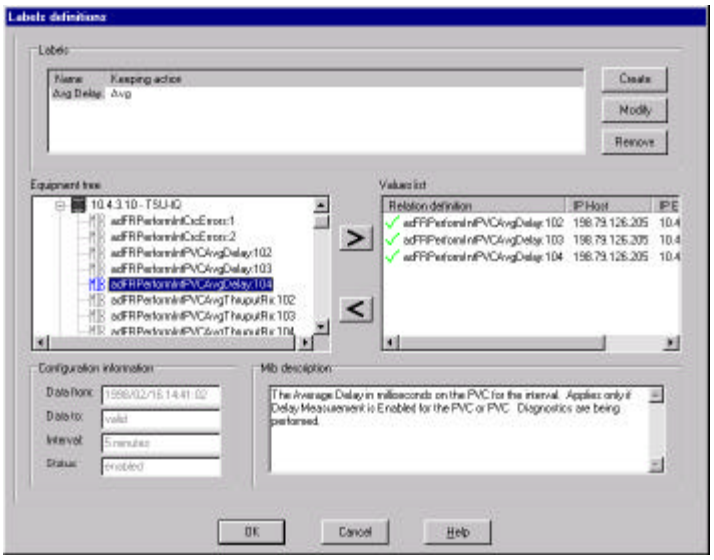
If the period is defined for one hour, the data sample within the hour (6:00 to 6:55) will be used as a data point for 6:00 in the report. If the sample interval is set for five minutes, the first value seen within the hour of 6:00 will be taken from 6:00.

Last Selecting **Last** as a keeping action will present the last value found within the period defined for the report.

If the period is defined for one hour, the last data sample within the hour (6:00 to 6:55) will be used as a data point for 6:00 in the report. If the sample interval is set for fine minutes, the last value seen within the hour of 6:00 will be taken from 6:55.

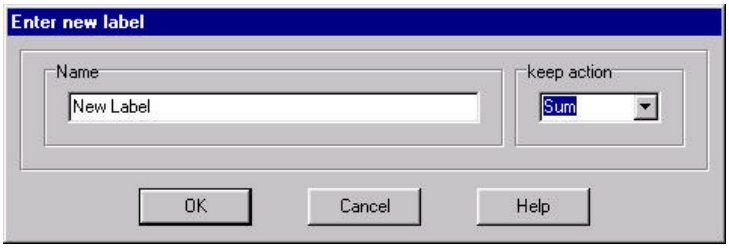
Label Definitions

The **Label Definition Dialog Box** for 2D Charts allows you to define labels or names from equipment and MIB variables found in the database. It follows the same designs and instructions as for the **Group Definition Dialog Box**.

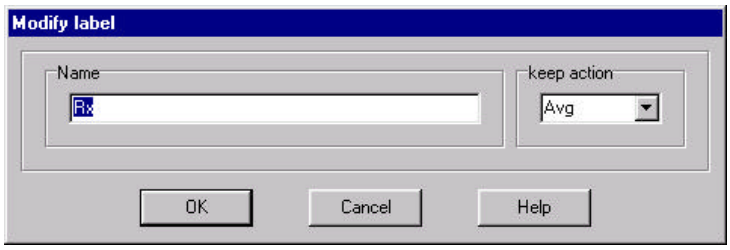


The **Labels** section defines the current list of labels you have created for the **Data Information** folder. **Keeping Action** defines the type of data used in the report you are creating. Use the **Keeping Action** as a visual reminder of the report type.

- Select **Create** to open the **Create New Label Dialog Box**.



1. Enter the name you wish to give to the new label.
2. Select a **keeping action** from the pick list. A **keeping action** allows you to define variables such as Average, Minimum or Summary. It allows you to quickly see what type of label you have defined.
3. Click on **OK** to accept the new label and close the **Enter New Label Dialog Box**.



- Select **Modify** to open the **Modify Label Dialog Box**.

1. Enter the new name you wish to give this label.
2. Select a **keeping action** from the pick list. A **keeping action** allows you to define variables such as Average, Minimum or Summary. It allows you to see the type of label you have defined.
3. Click on **OK** to accept the modification and close the **Modify Label Dialog Box**.

- Select **Remove** to delete a selected label.

The **Equipment Tree** section defines all equipment found in the **Universal Repository** database.

The **Values List** includes the actual items that are defined by the Labels. Add items to the **Values List** by first selecting the Label, then highlighting the item in the **Equipment Tree** and clicking on the **>** button. Remove items from the **Values List** by highlighting the item and clicking on **<**.

Note: Double-clicking on an item will automatically move it from the **Equipment Tree** to the **Values List**.

Configuration information is a read – only section describing the polling configuration of the MIB.

- **DATA FROM** describes the date and time that the MIB was configured.

- **DATA TO** defines the date and time that the MIB was deleted. If the MIB is still available, it will be displayed as **VALID**.

- **INTERVAL** defines the polling period.

- **STATUS** defines whether the selected MIB is disabled or enabled. Enable MIB's through the **IQ View Configurator**.

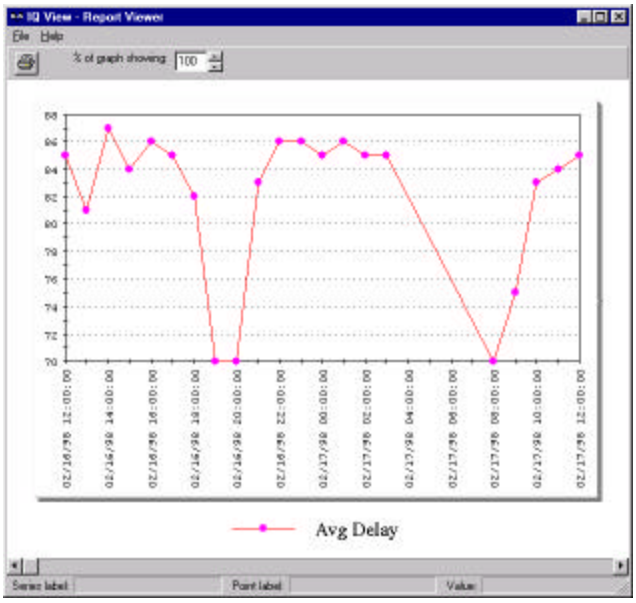
MIB Description in the **Label Definition Dialog Box** is another read – only section that displays a complete description of the selected MIB.

Remove Reports

1. Highlight the report you wish to remove in the **Report generation Dialog Box**.
2. Click on **Remove**.

Report Review

The **Report Viewer Dialog Box** displays the report that you are currently preparing or the previously generated report, depending upon your selection.



The **Report Viewer Dialog Box** allows you to manipulate the view of your report.

- Use the **File Menu** to print or exit the **Report Viewer Dialog Box**.
- Use the **About Menu** to display version number and copyright information of **Trend Analysis**.
- Use the **% of graph showing** pick list to enlarge or reduce the report view.

There are three sections on the **Report Viewer Dialog Box *Taskbar***: **Series label**, **Point label** and **Value**. Values for each of these sections is configured through **2D Chart Properties**. Items that you point to with your mouse will be displayed in the appropriate sections of the **Report Viewer Dialog Box *Taskbar***.

Text Bar

The **Text Bar** contain icons generic to most ***Windows*** applications with the exception of the following that are unique to **Trend Analysis**:

OK adds text in the descriptive field to your report.

CANCEL your text additions using this option.

EXPRESSION WIZARD is opened to add expressions and equations to your report. See **Expression Wizard** for further details about the **Expression Wizard Dialog Box**.

FONT COLOR adds bolder text through the use of color.

BACKGROUND COLOR can be used to add contrast to your report.

LEFT FRAME places your descriptive text on the left side of your report.

TOP FRAME places your text on top of your report.

BOTTOM FRAME places your text at the bottom of your report.

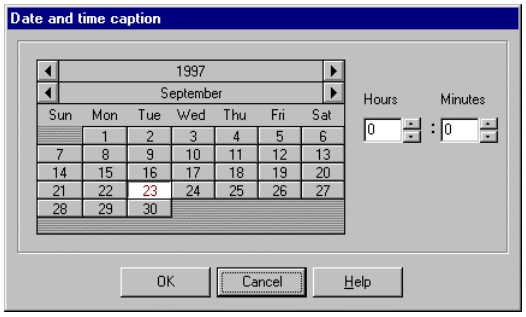
RIGHT FRAME places your text at the right side of your report.

AUTOSIZE adjusts the size of text and images so they will always fit in a specified field.

Note: Move headers, footers etc. by using the *Drag and Drop* feature.

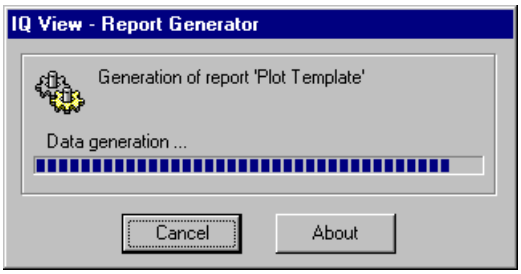
Using the Date and Time Caption Dialog Box

1. Select the year and month by pointing and clicking on the up or down direction arrows.
2. Click on a date to select it. The selected date is highlighted in the calendar.
3. Select a time by scrolling through hours and minutes using the up or down direction arrows. If you do not select a time, the data will be collected automatically at midnight.
4. Click on **OK** to exit the **Date and Time Caption Dialog Box**.



Report Generation

Once reports have been configured and scheduled, **Trend Analysis** will display the **IQ View Report Generator** which allows you to follow the progress of your report generation.



Click on **Cancel** to cancel to terminate the report generation or **About** to display the current version number and copyright information.

Label Formats

The **Format** property of the **Data Information** folder specifies what time format is to be displayed at each point. The **IsDefault** property allows the chart to automatically determine an appropriate format so you often do not need to customize the format. The following table lists all the valid format codes.

Format	Definition
%a	Weekday name, abbreviated
%A	Weekday name
%b	Month name, abbreviated
%B	Month name
%c	Appropriate date/time representation
%d	Day of Month (0 to 31)
%H	Hour (0 to 23)
%I	Hour (0 to 12)
%j	Day Number of year (001 to 366)
%m	Month number (01 to 12)
%M	Minute of hour (00 to 59)
%p	AM to PM
%S	Seconds (00 to 61)
%U	Week number of year (00 to 53), Sunday first day of
%w	Weekday number (0 to 6), Sunday = 0
%W	Week number of year (00 to 53), Monday first day of
%x	Appropriate date representation
%X	Appropriate time representation

%y	Year number within century (00 to 99)
%Y	Year
%Z	Time Zone (shows nothing if time zone not shown)

Chapter 16
Other Considerations

Chapter structure

This chapter is structured according to the following topics and subtopics:

- **Performance Considerations**
- **Compliance Standards**
  - **SNMP Standards**
- **Related Publications**
  - **TCP/IP**
  - **SNMP**
  - **Network Management**

Performance Considerations

In order to optimize system performance it is recommended that a user only retrieve the data that they specifically want to database for use in generation of **Trend Analysis** reports. Simply retrieving all stored data from an **IQ** unit can add significant delay due to the inherent nature of SNMP environments. The **IQ** units do allow real time access to all information stored in the unit through Telnet or VT100.

You must always keep in mind that because the **IQ View Foundation** manages your network and sends SNMP requests, it can considerably impact your network performance *if the application is not configured properly*.

The following are performance considerations that should be kept in mind when working with the **IQ View Foundation**:

- Do not run **AutoDiscovery** in continuous mode. Rather, run it overnight (using the **Autodiscovery Scheduler**) if you want to refresh your **AutoDiscovery Database** on a daily basis.
- Close all unnecessary device management applications, such as a GUI, particularly if it is running in **Auto Refresh** mode.
- Running more than 16 applications simultaneously can cause *Windows* performance degradation, a lack of resources, or memory shortage.
- If you run applications in **Auto Refresh** mode, avoid setting a short refresh delay (such as 2 secs). Instead, set higher values (such as 10 secs).
- Run **Polling** *only* on your critical network nodes (repeaters, bridges, and routers). *Polling too many nodes can severely degrade your network performance*.
- Set high *timeout* values (5 secs to 30 secs) for polling and device management if your are managing nodes in a WAN network (with routers).

Compliance Standards

The **IQ View Foundation** is compliant with the following standards:

SNMP Standards

RFC 1089: SNMP over Ethernet

RFC 1155: Structure and Identification of Management Information for TCP/IP-Based Internets

RFC 1157: Simple Network Management Protocol (SNMP)

RFC 1213: Management Information Base for Network Management of TCP/IP-Based Internets: MIB-II

RFC 1215: A Convention for Defining Traps for Use with SNMP

RFC 1298: SNMP Over IPX[1]

RFC 1303: A Convention for Describing SNMP-Based Agents

RFC 1452: Coexistence between Version 1 and Version 2 of the Internet-Standard Network Management Framework.

Related Publications

This section lists several technical publications useful in explaining network management.

TCP/IP

TCP/IP Illustrated Volume 1; The Protocols, W. Richard Stevens, Addison-Wesley Publishing Company ISBN 0-201-63346-9

Internetworking with TCP/IP, Douglas E. Comer, Prentice Hall, ISBN 0-13-468505-9

TCP/IP and Related Protocol, Ulysses Black, McGraw-Hill, Inc, ISBN 0-07-005553-X

SNMP

SNMP, SNMPv2 and CMIP; **The Practical Guide to Network Management Standards**, William Stallings, Addison-Wesley Publishing Company, ISBN 0-201-6331-0.

The Simple Book: An Introduction to Internet Management, Second Edition, Rose M.T, Prentice-Hall, Englewood Cliffs, N.J

[1] Support of WinSNMP/IPX is provided by PC/TCP of FTP/Software. It is compliant with RFC 1420. Microsoft's protocol stack is IP-based only and does not provide this support.

Network Management

Network Management Standards, The OSI, SNMP and CMOL Protocols, Ulysses Black, McGraw-Hill, Inc, ISBN 0-07-005554-8

Communication Network Management, Kornel Terplan, PTR Prentice Hall, Englewood Cliffs, New Jersey 07632 ISBN 0-13-156449-8

Network and Distributed Systems Management, Morris Sloman, Addison-Wesley Publishing Company, ISBN 0-201-62745-0